

JAPANESE

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CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE
INVENTION TECHNICAL PROBLEM MEANS DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

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CLAIMS

[Claim(s)]

[Claim 1] The server equipment which distributes an image and speech information, and the client equipment which receives the image and speech information distributed from this server equipment, and is reproduced, In the multimedia communication control approach in the system which consists of a communication network which connects said server equipment and said client equipment said server equipment By being the information which accompanies an image and speech information, and using the function of an external device If accompanying information including the information about the approach of using the external device for complementing the contents of an image and speech information is held for every parts of the image and speech information to distribute and a distribution demand of accompanying information is received from said client equipment Accompanying information required before playback of an image and speech information is distributed to the client equipment, and accompanying information is distributed periodically after that. Said client equipment While transmitting the distribution demand of an image and speech information to said server equipment As opposed to said server equipment A distribution demand of accompanying information It transmits, and required accompanying information is received from said server equipment before playback of the distributed image and speech information, the accompanying information distributed from said server equipment still more nearly periodically is received, and old accompanying information is transposed to new accompanying information. The function of an external device The multimedia communication control approach characterized by calling an external device based on the distributed newest accompanying information in using.

[Claim 2] The server equipment which distributes an image and speech information, and the client equipment which receives the image and speech information distributed from this server equipment, and is reproduced, In the multimedia communication control approach in the system which consists of a communication network which connects said server equipment and said client equipment said server equipment By being the information which accompanies an image and speech information, and using the function of an external device If accompanying information including the information about the approach of using the external device for complementing the contents of an image and speech information is held for every parts of the image and speech information to distribute and a distribution demand of accompanying information is received from said client equipment Accompanying information corresponding to each part of the image and speech information to distribute is continuously performed to the client equipment synchronizing with distribution of each part of an image and speech information. Said client equipment While transmitting the distribution demand of an image and speech information to said server equipment As opposed to said server equipment A distribution demand of accompanying information Transmit and each part of the distributed image and speech information In receiving the accompanying information corresponding to [both] each of that part which receives continuously and is reproduced before playback of the image and speech information of each of that part and using the function of an external device The multimedia communication control approach characterized by calling an external device based on the accompanying information corresponding to the parts of the image and speech information under playback.

[Claim 3] The server equipment which distributes an image and speech information, and the client equipment which receives the image and speech information distributed from this server equipment, and is reproduced, In the multimedia communication control approach in the system which consists of a communication network which connects said server equipment and said client equipment said server equipment By being the information which accompanies an image and speech information, and using the function of an external device The contents of an image and speech information If the distribution demand of accompanying information which held accompanying information including the information about the approach of using the external device for complementing, for every parts of the image and speech information to distribute, and specified an image and voice playback positional information from said client equipment is received It distributes to the client equipment of accompanying information corresponding to its image and voice playback positional information demand—origin to the client equipment. Said client equipment In order to transmit the distribution demand of an image and speech information to said server equipment, to reproduce the image and speech information distributed by that cause and to use the function of an external device during playback of an image and speech information, when accompanying information is needed The multimedia communication control approach characterized by transmitting a distribution demand of the accompanying information accompanied by the image and voice playback positional information at the time to said server equipment, receiving accompanying information from said server equipment, and calling an external device based on the received accompanying information.

[Claim 4] The server equipment which distributes an image and speech information, and the client equipment which receives the image and speech information distributed from this server equipment, and is reproduced, In the multimedia communication control approach in the system which consists of a communication network which connects said server equipment and said client equipment said server equipment By being the information which accompanies an image and speech information, and using the function of an external device If accompanying information including the information about the approach of using the external device for complementing the contents of an image and speech information is held for every parts of the image and speech information to distribute and a distribution demand of accompanying information is received from said client equipment As opposed to the client equipment Distribute accompanying information required before playback of an image and speech information, supervise whether modification was added to accompanying information after that, when modification of accompanying information is detected, distribute the accompanying information which modification produced to said client equipment, and said client equipment receives said server equipment. While transmitting the distribution demand of an image and speech information, said server equipment is received. When the accompanying information which transmitted the distribution demand of accompanying information, and received required accompanying information from said server equipment, and modification produced before playback of the distributed image and speech information is distributed from said server equipment being alike — the multimedia communication control approach characterized by calling an external device based on the newest accompanying information distributed when old accompanying information was transposed to new accompanying information and the function of an external device was used.

[Claim 5] The server equipment which distributes an image and speech information, and the client equipment which receives the image and speech information distributed from this server equipment, and is reproduced, In the multimedia communication control system which consists of a communication network which connects said server equipment and said client equipment said server equipment By being the information which accompanies an image and speech information, and using the function of an external device A means to hold accompanying information including the information about the approach of using the external device for complementing the contents of an image and speech information, for every parts of the image and speech information to distribute, In response to the distribution demand of an image and speech information, an image and speech information are put in block from said client equipment. Or a means to continue and distribute for every part and a means to receive a distribution demand of accompanying information from said client equipment, The newest accompanying information which is needed at

least before playback of the image and speech information in said client equipment or playback of each of that part is distributed to a distribution demand of the accompanying information from said client equipment. the image and voice playback positional information from said client equipment It has a means to distribute the accompanying information corresponding to its image and voice playback positional information, to a distribution demand of the specified accompanying information. Said client equipment A means to transmit the distribution demand of an image and speech information to said server equipment, and to reproduce the distributed image and speech information, When accompanying information is needed while reproducing the image and speech information which transmits a distribution demand of accompanying information or was distributed to said server equipment before playback of the distributed image and speech information, or playback of each of that part A means to transmit a distribution demand of the accompanying information accompanied by an image and voice playback positional information to said server equipment, The multimedia communication control system characterized by having an external device control means to call an external device based on the newest accompanying information distributed from said server equipment when using the function of an external device.

[Claim 6] An image and speech information are gone via a communication network. By being the record medium which recorded the program which the server equipment in the multimedia communication control system distributed to client equipment performs, being the information which accompanies the image and speech information accumulated for every parts of the image and speech information to distribute, and using the function of an external device The processing which manages accompanying information including the information about the approach of using the external device for complementing the contents of an image and speech information, and is read to the distribution demand of the accompanying information from said client equipment, In response to the distribution demand of an image and speech information, an image and speech information are put in block from said client equipment. Or processing continued and distributed for every part and processing which receives a distribution demand of accompanying information from said client equipment, The newest accompanying information which is needed at least before playback of the image and speech information in said client equipment or playback of each of that part is distributed to a distribution demand of the accompanying information from said client equipment. the image and voice playback positional information from said client equipment The record medium which recorded the program of the server equipment in the multimedia communication control system characterized by the thing which is made for a calculating machine to perform processing which distributes the accompanying information corresponding to its image and voice playback positional information to a distribution demand of the specified accompanying information, and which carried out program documentation.

[Claim 7] It goes via a communication network from the server equipment which distributes an image and speech information. Are the record medium which recorded the program which the client equipment in the multimedia communication control system which receives the distributed image and speech information, and is reproduced performs, and said server equipment is received. The processing which transmits the distribution demand of an image and speech information, and reproduces the distributed image and speech information, By said server equipment's being the information which accompanies the image and speech information held for every parts of an image and speech information, and using the function of an external device before playback of the distributed image and speech information, or playback of each of that part When accompanying information is needed while transmitting the distribution demand about accompanying information including the information about the approach of using the external device for complementing the contents of an image and speech information, to said server equipment or reproducing the distributed image and speech information The processing which is alike and transmits a distribution demand of the accompanying information accompanied by an image and voice playback positional information to said server equipment, The function of an external device The record medium which recorded the program of the client equipment in the multimedia communication control system characterized by the thing which is made for a calculating machine to perform processing which calls an external device based on the newest

accompanying information distributed from said server equipment when using, and which carried out program documentation.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the multimedia communication control approach of performing distribution of an image and speech information, and playback, and its system, on a communication network.

[0002]

[Description of the Prior Art] It sets on the technique treat distribution or playback of an image and speech information on current and a network, and the method of specifying the usage of change of a setup of support, and other programs and the function of equipment accompanying the time amount progress from a setup of the support of the link between two or more image and voice and playback initiation of an image and voice exists to distribution, and the image and the voice to reproduce.

[0003] The control approach by the programming language represented by JavaScript which controls two or more image and voice in the approach represented by SMIL of the WWW consortium (W3C) specification which controls two or more image and voice in an image and a voice distribution playback technique as the approach on a network, and HTML displayed by the WWW browser, and CGI (Common Gateway Interface) exists.

[0004] When the art in informational (it is henceforth called accompanying information) the are-recording approaches and the distribution approaches which accompany an image and speech information, such as the setting approach of a hyperlink, the usage of other equipments, etc. for distribution, and the image and the voice which are reproduced, is shown, in the above-mentioned approach, there is no difference in distribution, and the art of the assignment information on an image and voice and the art of accompanying information reproduce.

[0005] For example, by SMIL, the assignment information and accompanying information on an image and voice which are distributed and reproduced are described by the same location. Moreover, the assignment information and accompanying information on an image and voice which a program refers to and which are distributed and reproduced as a database are described by JavaScript and CGI in the program same as the same information.

[0006]

[Problem(s) to be Solved by the Invention] As mentioned above, in the playback approach of an image and speech information, and the method of treating accompanying information, during playback of an image or voice, when especially broadcasting live junction and a radio broadcasting on a network, support information on a link was not able to be changed in client equipment.

[0007] If an example is given, in SMIL, client equipment will acquire the information about all accompanying information from server equipment at the time of playback initiation of an image. Therefore, when accompanying information was changed after playback initiation, accompanying information was not already able to be acquired from server equipment, and the contents of modification were not able to be notified to the client equipment which is reproducing an image and voice.

[0008] In JavaScript, since the WWW browser acquired the contents of all accompanying

information at the time of acquisition of the information on HTML, the contents of modification of accompanying information were not able to be notified to client equipment for the same reason.

[0009] Moreover, although it was possible to have notified modification of accompanying information to client equipment by specifying a CGI program as the display contents of a WWW browser as a link place when using CGI, the synchronization with the timing which sends modification of accompanying information from server equipment, and the timing to which client equipment reproduces an image and voice was not taken.

[0010] This invention solves the problem produced when an image and speech information were distributed on a communication network using a Prior art that where of modification of accompanying information cannot be performed during playback of an image and voice, modification of accompanying information notifies to client equipment during playback of an image and voice, and it aims at making it possible to take a synchronization to playback of an image and voice, and modification of accompanying information.

[0011]

[Means for Solving the Problem] In order to attain the above purpose, this invention distributes an image and speech information from server equipment to client equipment on a communication network, performs distribution and reception of accompanying information apart from an image and speech information in the reproduced image and the voice distribution approach, and is characterized by enabling it to notify distribution of accompanying information, and modification between server equipment and client equipment during playback of an image or voice.

[0012] The means which has each following function in order to enable it to make distribution and modification of accompanying information between server equipment and client equipment during playback of an image or voice as mentioned above is formed in server equipment and client equipment.

[0013] An accompanying information storage means to hold and accumulate accompanying information including the information about the approach of complementing the contents of an image and speech information by accompanying an image and speech information and using the function of an external device for server equipment for every parts of an image and voice, An accompanying information distribution demand receiving means to receive the accompanying information distribution demand from client equipment, an accompanying information distribution means to distribute accompanying information, and management of the accumulated accompanying information and the accompanying information distribution control means which manages distribution of accompanying information are prepared.

[0014] Moreover, an accompanying information distribution demand transmitting means to require distribution of accompanying information of client equipment at server equipment based on a demand of a user, The image and a voice playback location extract means to gain the playback location of an image and voice when a distribution demand of accompanying information is transmitted, An accompanying information receiving means to receive the accompanying information distributed from server equipment, The accompanying information control means which takes the synchronization with the playback location of an image and voice where the received accompanying information is decoded and accompanying information corresponds, and the playback image and voice location which are actually reproduced, The accompanying information actuation means for choosing the external device used from an accompanying information-display means to display the received accompanying information, and the input and accompanying information-display means of a distribution demand from the user of accompanying information, An external device control means to start an external device based on the input from an accompanying information actuation means is established.

[0015] The operation of this invention is as follows. In the accompanying information distribution demand transmitting means of client equipment, and the accompanying information distribution demand receiving means of server equipment, in server equipment and client equipment with an above-mentioned means, the distribution demand of an image and speech information has transmitted the distribution demand of accompanying information independently to server equipment from client equipment. In server equipment, an accompanying information storage

means, an accompanying information distribution control means, and an accompanying information distribution means are performing message distribution processing of accompanying information, and are distributing accompanying information independently with the message distribution processing of an image and speech information.

[0016] On the other hand, in client equipment, it is establishing an accompanying information receiving means and an accompanying information control means, and is the reception of an image and speech information performing reception of accompanying information independently, and establishing an accompanying information-display means, an accompanying information actuation means, and an external device control means, and playback of an image and voice is using the external device independently.

[0017] Therefore, it becomes possible [distribution of an image and speech information, or reproductive processing] independently to perform distribution or reception of accompanying information, and server equipment and client equipment enable to notify modification of accompanying information to client equipment during distribution of an image and speech information, or playback, and it becomes possible at this invention to take playback of an image and voice and the synchronization of modification of accompanying information in client equipment.

[0018] A program for a computer to realize each processing means of the server equipment of a more than and client equipment is storable in suitable record media, such as portable medium memory which a computer can read, semiconductor memory, and a hard disk.

[0019]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained using drawing. Drawing 1 is drawing showing the example of a configuration of the server equipment concerning this invention, and drawing 2 is drawing showing the example of a configuration of the client equipment concerning this invention. Server equipment 10 and client equipment 20 are connected via a communication network 100. Generally, two or more client equipments 20 are connected to the communication network 100.

[0020] The image and a speech information are recording means 101 by which server equipment 10 accumulates an image and speech information as shown in drawing 1 , The image and the speech information distribution control means 102 which controls distribution of an image and speech information, The image and a speech information distribution demand receiving means 103 to receive the image and speech information distribution demand from client equipment 20, The image and a speech information distribution means 104 to distribute the accumulated image and speech information, By accompanying an image and speech information and using the function of an external device 30 (not shown) An accompanying information storage means 111 to accumulate and hold accompanying information including the information about the approach of using the external device 30 for complementing the contents of an image and speech information, for every parts of an image and speech information, It has management of the accumulated accompanying information, the accompanying information distribution control means 112 which manages distribution of accompanying information, an accompanying information distribution demand receiving means 113 to receive the accompanying information distribution demand from client equipment 20, and the accompanying information distribution means 114 for distributing accompanying information. The image and speech information input means from a camera etc. other than the image and speech information are recording means 101 instead of above-mentioned image and speech information are recording means 101 can also be used.

[0021] Although not necessarily limited to that it is not necessarily explained below that uses the function of an external device 30 here, it is using the Internet telephone of the specific message place related to the part under the playback, or accessing a specific homepage by the WWW browser, or accessing a specific FTP (File Transfer Protocol) server, and transmitting or gaining a certain file, for example during playback of a certain image and voice.

[0022] As shown in drawing 2 , client equipment 20 The playback image and a voice output means 201 to output the reproduced image and voice, The image and a speech information actuation means 202 to operate the distributed image and speech information, The playback control means 203 which controls playback of the distributed image and speech information, The

image and a speech information distribution demand transmitting means 204 to transmit an image and a speech information distribution demand to server equipment 10, The image and a speech information receiving means 205 to receive the distributed image and speech information, The image and a voice playback location extract means 206 to gain an image and a voice playback location when a user gives an acquisition demand of accompanying information during an image and voice playback, An accompanying information actuation means 211 to choose the external device 30 which inputs a distribution demand of the accompanying information from a user, and is used from the accompanying information-display means 212, The received accompanying information The accompanying information control means 213 which takes the synchronization with an accompanying information-display means 212 to display, and the image and voice playback location where the received accompanying information is decoded and accompanying information corresponds, and the image and voice playback location which the playback control means 203 is actually reproducing, An accompanying information distribution demand transmitting means 214 to require distribution of accompanying information of server equipment 10 based on a demand of a user, It has an accompanying information receiving means 215 to receive the accompanying information distributed from server equipment 10, and an external device control means 216 to start an external device 30 based on the input from the accompanying information actuation means 211.

[0023] For example, as accompanying information which accompanies the parts of the image and speech information under playback, it is (a). When using an Internet telephone for an external device ***** point information and (b) The connection place information when using a WWW browser for an external device, and (c) When connection place information, when using a FTP server for an external device is set up, When the accompanying information actuation means 211 inputs a use demand of accompanying information from a user, the accompanying information-display means 212 By the notice from the accompanying information actuation means 211, it is based on the accompanying information at that time, and is (a) as an available external device. An Internet telephone and (b) A WWW browser and (c) It indicates that there is a FTP server. If a user chooses an external device with the accompanying information actuation means 211, to the external device control means 216, the accompanying information at that time and a user's selection information will be notified, and the external device control means 216 will call the external device 30 which the user chose based on the notified accompanying information.

[0024] As a means about distribution of the image and speech information in server equipment 10 and client equipment 20, mounting of for example, the following (1) - (3) is possible.

[0025] (1) The image and the speech information distribution demand transmitting means 204 of client equipment 20 transmit an image and a speech information distribution demand to server equipment 10. The image and the speech information distribution means 104 of server equipment 10 distribute all the information on an image and speech information to client equipment 20, before the playback control means 203 of client equipment 20 starts playback of an image and voice.

[0026] (2) The image and the speech information distribution demand transmitting means 204 of client equipment 20 transmit an image and a speech information distribution demand to server equipment 10. When server equipment 10 starts distribution of an image and speech information, the playback control means 203 starts playback of an image and voice at the same time client equipment 20 receives a part of image and speech information.

[0027] (3) The image and the speech information distribution demand transmitting means 204 of client equipment 20 transmit an image and a speech information distribution demand to server equipment 10. The image and the speech information distribution means 104 of server equipment 10 distribute the image and speech information of these contents to coincidence to the unit or two or more client equipments 20 which gave the image and the speech information distribution demand to server equipment 10.

[0028] Moreover, mounting of for example, the following (1) - (5) is possible as a means about distribution of the accompanying information in server equipment 10 and client equipment 20.

[0029] (1) The accompanying information distribution demand transmitting means 214 of client equipment 20 transmits a distribution demand of accompanying information to server equipment

10 at the time of playback initiation of an image and speech information. The accompanying information distribution control means 112 of server equipment 10 and the accompanying information distribution means 114 will distribute required accompanying information to client equipment 20 before playback initiation of the image and voice of client equipment 20, if an accompanying information distribution demand is received.

[0030] (2) The accompanying information distribution control means 112 of server equipment 10 and the accompanying information distribution means 114 continue distributing accompanying information at fixed spacing. Moreover, the accompanying information control means 213 of client equipment 20 compares the accompanying information distributed at fixed spacing with the accompanying information acquired at the time of transmission of an image voice delivery information demand, and when these differ, it changes accompanying information.

[0031] (3) The accompanying information distribution demand transmitting means 214 of client equipment 20 advances a distribution demand of accompanying information to server equipment 10 at the time of playback initiation of an image and speech information. If a distribution demand of accompanying information is received, the accompanying information distribution control means 112 of server equipment 10 and the accompanying information distribution means 114 will synchronize, will perform distribution of an image and speech information, and distribution of accompanying information, and will distribute the accompanying information corresponding to each part of an image to client equipment 20.

[0032] (4) The image and the voice playback location extract means 206 of client equipment 20 acquire an image and voice playback positional information, when a user gives an acquisition demand of accompanying information during playback of an image and speech information. Moreover, the accompanying information distribution demand transmitting means 214 transmits a distribution demand of the accompanying information accompanied by the acquired image and voice playback positional information to server equipment 10. The accompanying information distribution means 114 of server equipment 10 will distribute the accompanying information corresponding to the received image and voice playback location, if this distribution demand is received.

[0033] (5) When modification arises to accompanying information, the accompanying information distribution control means 112 of server equipment 10 recognizes that modification arose, and directs distribution of the accompanying information which the modification produced for the accompanying information distribution means 114. The accompanying information distribution means 114 distributes the accompanying information which modification produced to client equipment 20, when the notice of modification of accompanying information is received from the accompanying information distribution control means 112.

[0034] By each of these means, this invention has the accompanying information distribution function that the server equipment 10 which an image and speech information distributed, and client equipment 20 transmitted an accompanying information distribution demand to server equipment 10 in addition to the image and the voice distribution regenerative function to which client equipment 20 reproduces an image and voice, and received a distribution demand distributes accompanying information, and the external device starting function that client equipment 20 calls an external device 30 based on accompanying information, in server equipment 10. Below, the flow of the processing in the gestalt of each operation is explained.

[0035] [Gestalt of the 1st operation] Drawing 3 is drawing for explaining the flow of the processing in the gestalt of the 1st operation. The flow of the processing shown in drawing 3 between server equipment 10 and client equipment 20 When an image and a speech information distribution demand are transmitted from client equipment 20 to server equipment 10 Client equipment 20 playback of an image and voice Before starting, when all the information on image information and accompanying information is distributed to client equipment 20 from server equipment 10, and accompanying information is periodically distributed to client equipment 20 from server equipment 10 and modification arises to accompanying information, modification of accompanying information In the approach of performing, it is a thing when using accompanying information.

[0036] If an image and a speech information distribution demand signal, and an accompanying

information distribution demand signal are transmitted to server equipment 10 from the image and the speech information distribution demand transmitting means 204 of client equipment 20, the image and the speech information distribution demand receiving means 103 of server equipment 10, and the accompanying information distribution demand receiving means 113 will receive each signal (S101, S102). Server equipment 10 will distribute all the demanded required information on an image and speech information to client equipment 20 from an image and the speech information distribution means 104, if an image and a speech information distribution demand signal are received (S103). All the information on the accompanying information which accompanies the image and speech information to distribute is also then distributed to client equipment 20 from the accompanying information distribution means 114 at coincidence (S104).

[0037] With client equipment 20, an image and the speech information receiving means 205, and the accompanying information receiving means 215 receive all images and speech information, and all accompanying information, respectively, and playback of an image and voice is started (S105). However, when the demanded image and speech information, or accompanying information is not distributed, client equipment 20 transmits a resending demand of an image and speech information, and accompanying information to server equipment 10 from an image and the speech information distribution demand transmitting means 204, and the accompanying information distribution demand transmitting means 214, respectively, and requires distribution of an image and speech information, or accompanying information from server equipment 10 again.

[0038] Server equipment 10 distributes accompanying information to client equipment 20 from the accompanying information distribution means 114 at fixed spacing. The accompanying information control means 213 of client equipment 20 performs the comparison with the accompanying information which acquired to the image and the speech-information distribution demand whenever the accompanying information receiving means 215 received accompanying information, and the accompanying information which newly received, and when the accompanying information which acquired to an image and the speech-information distribution demand differs from the accompanying information which newly received, the accompanying information hold replaces to the accompanying information newly received (S106).

[0039] A user inputs the use demand of the function of an external device 30 into client equipment 20 from the accompanying information actuation means 211, when checking a playback image and voice and using the function of an external device 30 (S107). If the use demand of the function of an external device 30 is inputted, the playback control means 203 will suspend playback of an image and voice, and will pass playback halt positional information to an image and the voice playback location extract means 206 (S108, S109). Playback halt positional information is also passed at coincidence to the accompanying information control means 213.

[0040] If playback halt positional information is received, the accompanying information control means 213 will be referring to playback halt positional information with reference to the accompanying information received from server equipment 10, and it will opt for the action (it is henceforth called external information starting conditions) which should perform an external device 30 (S110).

[0041] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. The external device control means 216 will start an external device 30 based on external information starting conditions, if external information starting conditions are received.

[0042] for example, if elapsed time sets to L_t ($0 < L_t < L_1$) when recognizing each part of an image and voice by the elapsed time from playback initiation, if accompanying information as shown in drawing 4 is taken for an example, it will judge from the specific information of Location — information[0] 401 become effective. When the user has chosen the WWW browser as an external device 30 at this time, a WWW browser opens URL of `http://www.*****` according to the parameter of "Browser[0] =`http://www.*****`" currently written to information[0] 401 of accompanying information (S111).

[0043] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device

control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting conditions (S112).

[0044] If a user suspends use of an external device 30, the external device control means 216 will detect the terminate signal of an external device 30 (S113). The external device control means 216 will advance the resumption demand of playback to the playback control means 203, if the terminate signal of an external device 30 is detected. If the resumption demand of playback is received, the playback control means 203 will acquire playback halt positional information from an image and the voice playback location extract means 206, and will resume playback from a playback halt location (S114).

[0045] As mentioned above, with the gestalt of this operation, client equipment 20 receives accompanying information periodically. Thereby, when modification arises to accompanying information, client equipment 20 acquires the changed accompanying information from server equipment 10, and the synchronization with playback of the image and voice in client equipment 20 and the changed accompanying information of it is attained.

[0046] [Gestalt of the 2nd operation] Drawing 5 is drawing for explaining the flow of the processing in the gestalt of the 2nd operation. The flow of the processing shown in drawing 5 is a thing when using accompanying information, when an image and a speech information distribution demand are transmitted from client equipment 20 to server equipment 10 between server equipment 10 and client equipment 20, and starting playback of an image and voice at the same time client equipment 20 receives the image information and the accompanying information distributed from server equipment 10.

[0047] If an image and a speech information distribution demand signal, and an accompanying information distribution demand signal are transmitted to server equipment 10 from the image and the speech information distribution demand transmitting means 204 of client equipment 20, the image and the speech information distribution demand receiving means 103 of server equipment 10, and the accompanying information distribution demand receiving means 113 will receive these signals, respectively (S201, S202). Server equipment 10 will distribute continuously the demanded image and speech information to client equipment 20 from an image and the speech information distribution means 104, if an image and a speech information distribution demand signal are received (S203). The accompanying information which accompanies the image and speech information to distribute is also then distributed to client equipment 20 continuously from the accompanying information distribution means 114 at coincidence (S204).

[0048] Client equipment 20 will start playback of an image and voice to reception and coincidence, if an image and the speech information receiving means 205, and the accompanying information receiving means 215 receive an image and speech information, and accompanying information, respectively (S205). However, when the existence of loss of the information sent on a communication network 100 is checked and informational loss is accepted, client equipment 20 transmits a resending demand of the information lost to server equipment 10 about each of an image and speech information, or accompanying information from an image and the speech information distribution demand transmitting means 204, and the accompanying information distribution demand transmitting means 214.

[0049] Moreover, before reproducing an image and voice, it is necessary to do the activity which takes the synchronization with the image and speech information, and accompanying information which were distributed. Therefore, an image, speech information, and accompanying information need to be beforehand acquired, in case an image and voice are reproduced, and acquisition of an image, speech information, and accompanying information is performed in advance of playback of an image and voice. For example, if the time amount for 3 seconds is required for the synchronization of processing of a resending demand of information, an image and speech information, and accompanying information, as for client equipment 20, the image and speech information for 3 seconds, and accompanying information will be acquired before playback of an image and voice at least.

[0050] A user inputs the use demand of the function of an external device 30 into client equipment 20 from the accompanying information actuation means 211, when checking a

playback image and voice and using the function of an external device 30 (S206). If the use demand of the function of an external device 30 is inputted, the playback control means 203 will pass the playback positional information at the time of the use demand of the function of an external device 30 being inputted to the accompanying information control means 213 (S207, S208).

[0051] If playback positional information is received, with reference to the accompanying information received from server equipment 10, the accompanying information control means 213 will be referring to playback positional information, and will determine external information starting conditions (S209).

[0052] If elapsed time sets to Lt ($0 < Lt < L1$) when recognizing each part of an image and voice by the elapsed time from playback initiation, if the accompanying information shown in drawing 4 is taken for an example, information[0] 401 will become effective. When the user has chosen the WWW browser as an external device 30 at this time, a WWW browser opens URL of `http://www.*****` according to the parameter of "Browser[0] =`http://www.*****`" currently written to information[0] 401 of accompanying information (S210).

[0053] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting conditions (S211).

[0054] A user's halt of use of an external device 30 checks that the external device control means 216 detected the terminate signal of an external device 30, and the external device 30 has ended it (S212).

[0055] As mentioned above, with the gestalt of this operation, client equipment 20 receives accompanying information continuously. Thereby, when modification arises to accompanying information, client equipment 20 acquires the always changed accompanying information from server equipment 10, and the synchronization with playback of the image and voice in client equipment 20 and the changed accompanying information of it is attained.

[0056] [Gestalt of the 3rd operation] Drawing 6 is drawing for explaining the flow of the processing in the gestalt of the 3rd operation. The flow of the processing shown in drawing 6 between server equipment 10 and client equipment 20 When an image and a speech information distribution demand are transmitted from client equipment 20 to server equipment 10 When all the information on image information is distributed to client equipment 20 from server equipment 10 before client equipment 20 started playback of an image and voice, and the use demand of the function of an external device 30 is inputted from a user about accompanying information It is a thing when using accompanying information in the approach of transmitting a distribution demand to chisel server equipment 10, and distributing to client equipment 20.

[0057] If an image and a speech information distribution demand signal are transmitted to server equipment 10 from the image and the speech information distribution demand transmitting means 204 of client equipment 20, the image and the speech information distribution demand receiving means 103 of server equipment 10 will receive an image and a speech information distribution demand signal (S301). Server equipment 10 will distribute the demanded information on an image and speech information to client equipment 20 from an image and the speech information distribution means 104, if an image and a speech information distribution demand signal are received (S302).

[0058] If an image and the speech information receiving means 205 receive all images and speech information, client equipment 20 will start playback of an image and voice (S303). However, when the demanded image and speech information are not distributed, client equipment 20 transmits a resending demand of an image and speech information, and accompanying information to server equipment 10 from an image and the speech information distribution demand transmitting means 204, and the accompanying information distribution demand transmitting means 214, respectively, and requires distribution of an image and speech information, or accompanying information from server equipment 10 again.

[0059] A user inputs the use demand of the function of an external device 30 into client

equipment 20 from the accompanying information actuation means 211, when checking a playback image and voice and using the function of an external device 30 (S304). If the use demand of the function of an external device 30 is inputted, the playback control means 203 will pass the image and voice playback positional information at the time of the use demand of the function of an external device 30 being inputted to the accompanying information control means 213 (S305, S306).

[0060] If playback positional information is received, the accompanying information control means 213 will transmit a distribution demand of accompanying information from the accompanying information distribution demand transmitting means 214 while transmitting an image and voice playback positional information to server equipment 10 (S307). If an image and voice playback positional information, and an accompanying information distribution demand are received with the accompanying information distribution demand receiving means 113, server equipment 10 will decide the accompanying information which should be distributed to client equipment 20 based on an image and voice playback positional information, and will distribute accompanying information from the accompanying information distribution means 114 (S308).

However, when the demanded accompanying information is not distributed, client equipment 20 transmits a resending demand of accompanying information from the accompanying information distribution demand transmitting means 214 to server equipment 10, and requires distribution of accompanying information from server equipment 10 again.

[0061] If the accompanying information receiving means 215 receives accompanying information, external information starting conditions will be determined based on accompanying information (S309). If external device starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting conditions.

[0062] If elapsed time sets to L_t ($0 < L_t < L_1$) when recognizing each part of an image and voice by the elapsed time from playback initiation, if the accompanying information shown in drawing 4 is taken for an example, information[0] 401 will become effective. When the user has chosen the WWW browser as an external device at this time, a WWW browser opens URL of `http://www.*****` according to the parameter of "Browser[0] =`http://www.*****`" currently written to information[0] 401 of accompanying information (S310).

[0063] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting conditions (S311).

[0064] A user's halt of use of an external device 30 checks that the external device control means 216 detected the terminate signal of an external device 30, and the external device 30 has ended it (S312).

[0065] As mentioned above, with the gestalt of this operation, although client equipment 20 does not hold accompanying information in advance, it acquires accompanying information by requiring distribution of accompanying information of server equipment 10 according to the demand from a user. Consequently, when modification arises to accompanying information, client equipment 20 acquires the changed accompanying information which server equipment 10 has, and the synchronization with playback of the image and voice in client equipment 20 and the changed accompanying information of it is attained.

[0066] [Gestalt of the 4th operation] Drawing 7 is drawing for explaining the flow of the processing in the gestalt of the 4th operation. The flow of the processing shown in drawing 7 between server equipment 10 and client equipment 20 When an image and a speech information distribution demand are transmitted from client equipment 20 to server equipment 10 When client equipment 20 started playback of an image and voice, accompanying information acquires all required information from server equipment 10 before client equipment 20 started playback of an image and voice and modification of accompanying information arises at the same time it

receives the image information distributed from server equipment 10. When server equipment 10 distributes ** and its modification information to client equipment 20, it is a thing when using accompanying information.

[0067] If an image and a speech information distribution demand signal, and an accompanying information distribution demand signal are transmitted to server equipment 10 from the image and the speech information distribution demand transmitting means 204 of client equipment 20, the image and the speech information distribution demand receiving means 103 of server equipment 10, and the accompanying information distribution demand receiving means 113 will receive, respectively (S401, S402). Server equipment 10 will distribute the demanded image and speech information to client equipment 20 from an image and the speech information distribution means 104, if an image and a speech information distribution demand signal are received. All the information on the accompanying information which accompanies the image and speech information to distribute is also then distributed to client equipment 20 from the accompanying information distribution means 114 at coincidence (S403, S404).

[0068] If an image and the speech information receiving means 205 receive an image and speech information, client equipment 20 will start playback of an image and voice (S405). However, when the existence of loss of the information sent on a communication network 100 is checked and informational loss is accepted, client equipment 20 transmits a resending demand of the information lost to server equipment 10 about each of an image and speech information, and accompanying information from an image and the speech information distribution demand transmitting means 204, and the accompanying information distribution demand transmitting means 214.

[0069] Moreover, it is necessary to do the activity which takes the synchronization with the image and speech information, and accompanying information which were distributed before playback of an image and voice. Therefore, in case an image, speech information, and accompanying information reproduce an image and voice, they need to be acquired beforehand, and acquisition of an image, speech information, and accompanying information is performed in advance of playback of an image and voice. For example, if the time amount for 3 seconds is required for the synchronization of processing of a resending demand of information, an image and speech information, and accompanying information, as for client equipment 20, the image and speech information for 3 seconds, and accompanying information will be acquired before playback of an image and voice at least.

[0070] Server equipment 10 will distribute the changed accompanying information from the accompanying information distribution means 114 to client equipment 20, if modification of the accompanying information accumulated in the accompanying information storage means 111 is detected by the accompanying information distribution control means 112. Client equipment 20 performs the comparison with the accompanying information which acquired to an image and a speech-information distribution demand when the accompanying information receiving means 215 received the changed accompanying information, and the accompanying information which newly received, and when the accompanying information which acquired to an image and a speech-information distribution demand differs from the accompanying information which newly received, it replaces the accompanying information hold to the accompanying information newly received (S406).

[0071] A user inputs the use demand of the function of an external device 30 into client equipment 20 from the accompanying information actuation means 211, when checking a playback image and voice and using the function of an external device (S407).

[0072] If the use demand of the function of an external device 30 is inputted, the playback control means 203 will pass the playback positional information of the image and voice at the time of the use demand of the function of an external device 30 being inputted to the accompanying information control means 213 (S408, S409).

[0073] If playback positional information is received, with reference to the accompanying information received from server equipment 10, the accompanying information control means 213 will be referring to playback positional information, and will determine external information starting conditions (S410).

[0074] If elapsed time sets to Lt ($0 < Lt < L1$) when recognizing each part of an image and voice by the elapsed time from playback initiation, if the accompanying information shown in drawing 4 is taken for an example, information[0] 401 will become effective. When the user has chosen the WWW browser as an external device 30 at this time, a WWW browser opens URL of `http://www.*****` according to the parameter of "Browser[0] =`http://www.*****`" currently written to information[0] 401 of accompanying information (S411).

[0075] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting conditions (S412).

[0076] A user's halt of use of an external device 30 checks that the external device control means 216 detected the terminate signal of an external device 30, and the external device 30 has ended it (S413).

[0077] As mentioned above, with the gestalt of this operation, client equipment 20 receives the new accompanying information changed at the time of modification of accompanying information. Thereby, when modification arises to accompanying information, client equipment 20 acquires the changed accompanying information from server equipment 10, and the synchronization with playback of the image and voice in client equipment 20 and the changed accompanying information of it is attained.

[0078] In addition, in the above explanation, it cannot be overemphasized that both of an image and voice are sufficient as either an image or voice. Moreover, although explanation of the gestalt of the above-mentioned implementation explained the example which distributes the image and speech information accumulated beforehand, in distribution of the image and speech information which has time constraint by distribution, for example from an information input like play-by-play broadcasting, this invention is applicable similarly.

[0079]

[Effect of the Invention] As explained above, when distributing an image and voice on a communication network by using this invention, independently of distribution or regeneration of an image and speech information, the message distribution processing of accompanying information becomes possible. Therefore, during playback of an image and voice, even when modification of accompanying information arises, the modification information on accompanying information can be distributed from server equipment to client equipment.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the multimedia communication control approach of performing distribution of an image and speech information, and playback, and its system, on a communication network.

[Translation done.]

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PRIOR ART

[Description of the Prior Art] It sets on the technique treat distribution or playback of an image and speech information on current and a network, and the method of specifying the usage of change of a setup of support, and other programs and the function of equipment accompanying the time amount progress from a setup of the support of the link between two or more image and voice and playback initiation of an image and voice exists to distribution, and the image and the voice to reproduce.

[0003] The control approach by the programming language represented by JavaScript which controls two or more image and voice in the approach represented by SMIL of the WWW consortium (W3C) specification which controls two or more image and voice in an image and a voice distribution playback technique as the approach on a network, and HTML displayed by the WWW browser, and CGI (Common Gateway Interface) exists.

[0004] When the art in informational (it is henceforth called accompanying information) the are-recording approaches and the distribution approaches which accompany an image and speech information, such as the setting approach of a hyperlink, the usage of other equipments, etc. for distribution, and the image and the voice which are reproduced, is shown, in the above-mentioned approach, there is no difference in distribution, and the art of the assignment information on an image and voice and the art of accompanying information reproduce.

[0005] For example, by SMIL, the assignment information and accompanying information on an image and voice which are distributed and reproduced are described by the same location. Moreover, the assignment information and accompanying information on an image and voice which a program refers to and which are distributed and reproduced as a database are described by JavaScript and CGI in the program same as the same information.

[0006]

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, when distributing an image and voice on a communication network by using this invention, independently of distribution or regeneration of an image and speech information, the message distribution processing of accompanying information becomes possible. Therefore, during playback of an image and voice, even when modification of accompanying information arises, the modification information on accompanying information can be distributed from server equipment to client equipment.

[Translation done.]

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] As mentioned above, in the playback approach of an image and speech information, and the method of treating accompanying information, during playback of an image or voice, when especially broadcasting live junction and a radio broadcasting on a network, support information on a link was not able to be changed in client equipment.

[0007] If an example is given, in SMIL, client equipment will acquire the information about all accompanying information from server equipment at the time of playback initiation of an image. Therefore, when accompanying information was changed after playback initiation, accompanying information was not already able to be acquired from server equipment, and the contents of modification were not able to be notified to the client equipment which is reproducing an image and voice.

[0008] In JavaScript, since the WWW browser acquired the contents of all accompanying information at the time of acquisition of the information on HTML, the contents of modification of accompanying information were not able to be notified to client equipment for the same reason.

[0009] Moreover, although it was possible to have notified modification of accompanying information to client equipment by specifying a CGI program as the display contents of a WWW browser as a link place when using CGI, the synchronization with the timing which sends modification of accompanying information from server equipment, and the timing to which client equipment reproduces an image and voice was not taken.

[0010] This invention solves the problem produced when an image and speech information were distributed on a communication network using a Prior art that where of modification of accompanying information cannot be performed during playback of an image and voice, modification of accompanying information notifies to client equipment during playback of an image and voice, and it aims at making it possible to take a synchronization to playback of an image and voice, and modification of accompanying information.

[Translation done.]

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MEANS

[Means for Solving the Problem] In order to attain the above purpose, this invention distributes an image and speech information from server equipment to client equipment on a communication network, performs distribution and reception of accompanying information apart from an image and speech information in the reproduced image and the voice distribution approach, and is characterized by enabling it to notify distribution of accompanying information, and modification between server equipment and client equipment during playback of an image or voice.

[0012] The means which has each following function in order to enable it to make distribution and modification of accompanying information between server equipment and client equipment during playback of an image or voice as mentioned above is formed in server equipment and client equipment.

[0013] An accompanying information storage means to hold and accumulate accompanying information including the information about the approach of complementing the contents of an image and speech information by accompanying an image and speech information and using the function of an external device for server equipment for every parts of an image and voice, An accompanying information distribution demand receiving means to receive the accompanying information distribution demand from client equipment, an accompanying information distribution means to distribute accompanying information, and management of the accumulated accompanying information and the accompanying information distribution control means which manages distribution of accompanying information are prepared.

[0014] Moreover, an accompanying information distribution demand transmitting means to require distribution of accompanying information of client equipment at server equipment based on a demand of a user, The image and a voice playback location extract means to gain the playback location of an image and voice when a distribution demand of accompanying information is transmitted, An accompanying information receiving means to receive the accompanying information distributed from server equipment, The accompanying information control means which takes the synchronization with the playback location of an image and voice where the received accompanying information is decoded and accompanying information corresponds, and the playback image and voice location which are actually reproduced, The accompanying information actuation means for choosing the external device used from an accompanying information-display means to display the received accompanying information, and the input and accompanying information-display means of a distribution demand from the user of accompanying information, An external device control means to start an external device based on the input from an accompanying information actuation means is established.

[0015] The operation of this invention is as follows. In the accompanying information distribution demand transmitting means of client equipment, and the accompanying information distribution demand receiving means of server equipment, in server equipment and client equipment with an above-mentioned means, the distribution demand of an image and speech information has transmitted the distribution demand of accompanying information independently to server equipment from client equipment. In server equipment, an accompanying information storage means, an accompanying information distribution control means, and an accompanying information distribution means are performing message distribution processing of accompanying

information, and are distributing accompanying information independently with the message distribution processing of an image and speech information.

[0016] On the other hand, in client equipment, it is establishing an accompanying information receiving means and an accompanying information control means, and is the reception of an image and speech information performing reception of accompanying information independently, and establishing an accompanying information-display means, an accompanying information actuation means, and an external device control means, and playback of an image and voice is using the external device independently.

[0017] Therefore, it becomes possible [distribution of an image and speech information, or reproductive processing] independently to perform distribution or reception of accompanying information, and server equipment and client equipment enable to notify modification of accompanying information to client equipment during distribution of an image and speech information, or playback, and it becomes possible at this invention to take playback of an image and voice and the synchronization of modification of accompanying information in client equipment.

[0018] A program for a computer to realize each processing means of the server equipment of a more than and client equipment is storable in suitable record media, such as portable medium memory which a computer can read, semiconductor memory, and a hard disk.

[0019]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained using drawing. Drawing 1 is drawing showing the example of a configuration of the server equipment concerning this invention, and drawing 2 is drawing showing the example of a configuration of the client equipment concerning this invention. Server equipment 10 and client equipment 20 are connected via a communication network 100. Generally, two or more client equipments 20 are connected to the communication network 100.

[0020] The image and a speech information are recording means 101 by which server equipment 10 accumulates an image and speech information as shown in drawing 1 , The image and the speech information distribution control means 102 which controls distribution of an image and speech information, The image and a speech information distribution demand receiving means 103 to receive the image and speech information distribution demand from client equipment 20, The image and a speech information distribution means 104 to distribute the accumulated image and speech information, By accompanying an image and speech information and using the function of an external device 30 (not shown) An accompanying information storage means 111 to accumulate and hold accompanying information including the information about the approach of using the external device 30 for complementing the contents of an image and speech information, for every parts of an image and speech information, It has management of the accumulated accompanying information, the accompanying information distribution control means 112 which manages distribution of accompanying information, an accompanying information distribution demand receiving means 113 to receive the accompanying information distribution demand from client equipment 20, and the accompanying information distribution means 114 for distributing accompanying information. The image and speech information input means from a camera etc. other than the image and speech information are recording means 101 instead of above-mentioned image and speech information are recording means 101 can also be used.

[0021] Although not necessarily limited to that it is not necessarily explained below that uses the function of an external device 30 here, it is using the Internet telephone of the specific message place related to the part under the playback, or accessing a specific homepage by the WWW browser, or accessing a specific FTP (File Transfer Protocol) server, and transmitting or gaining a certain file, for example during playback of a certain image and voice.

[0022] As shown in drawing 2 , client equipment 20 The playback image and a voice output means 201 to output the reproduced image and voice, The image and a speech information actuation means 202 to operate the distributed image and speech information, The playback control means 203 which controls playback of the distributed image and speech information, The image and a speech information distribution demand transmitting means 204 to transmit an image and a speech information distribution demand to server equipment 10, The image and a speech

information receiving means 205 to receive the distributed image and speech information, The image and a voice playback location extract means 206 to gain an image and a voice playback location when a user gives an acquisition demand of accompanying information during an image and voice playback, An accompanying information actuation means 211 to choose the external device 30 which inputs a distribution demand of the accompanying information from a user, and is used from the accompanying information-display means 212, The received accompanying information The accompanying information control means 213 which takes the synchronization with an accompanying information-display means 212 to display, and the image and voice playback location where the received accompanying information is decoded and accompanying information corresponds, and the image and voice playback location which the playback control means 203 is actually reproducing, An accompanying information distribution demand transmitting means 214 to require distribution of accompanying information of server equipment 10 based on a demand of a user, It has an accompanying information receiving means 215 to receive the accompanying information distributed from server equipment 10, and an external device control means 216 to start an external device 30 based on the input from the accompanying information actuation means 211.

[0023] For example, as accompanying information which accompanies the parts of the image and speech information under playback, it is (a). When using an Internet telephone for an external device ***** point information and (b) The connection place information when using a WWW browser for an external device, and (c) When connection place information , when using a FTP server for an external device is set up, When the accompanying information actuation means 211 inputs a use demand of accompanying information from a user, the accompanying information-display means 212 By the notice from the accompanying information actuation means 211, it is based on the accompanying information at that time, and is (a) as an available external device. An Internet telephone and (b) A WWW browser and (c) It indicates that there is a FTP server. If a user chooses an external device with the accompanying information actuation means 211, to the external device control means 216, the accompanying information at that time and a user's selection information will be notified, and the external device control means 216 will call the external device 30 which the user chose based on the notified accompanying information.

[0024] As a means about distribution of the image and speech information in server equipment 10 and client equipment 20, mounting of for example, the following (1) - (3) is possible.

[0025] (1) The image and the speech information distribution demand transmitting means 204 of client equipment 20 transmit an image and a speech information distribution demand to server equipment 10. The image and the speech information distribution means 104 of server equipment 10 distribute all the information on an image and speech information to client equipment 20, before the playback control means 203 of client equipment 20 starts playback of an image and voice.

[0026] (2) The image and the speech information distribution demand transmitting means 204 of client equipment 20 transmit an image and a speech information distribution demand to server equipment 10. When server equipment 10 starts distribution of an image and speech information, the playback control means 203 starts playback of an image and voice at the same time client equipment 20 receives a part of image and speech information.

[0027] (3) The image and the speech information distribution demand transmitting means 204 of client equipment 20 transmit an image and a speech information distribution demand to server equipment 10. The image and the speech information distribution means 104 of server equipment 10 distribute the image and speech information of these contents to coincidence to the unit or two or more client equipments 20 which gave the image and the speech information distribution demand to server equipment 10.

[0028] Moreover, mounting of for example, the following (1) - (5) is possible as a means about distribution of the accompanying information in server equipment 10 and client equipment 20.

[0029] (1) The accompanying information distribution demand transmitting means 214 of client equipment 20 transmits a distribution demand of accompanying information to server equipment 10 at the time of playback initiation of an image and speech information. The accompanying information distribution control means 112 of server equipment 10 and the accompanying

information distribution means 114 will distribute required accompanying information to client equipment 20 before playback initiation of the image and voice of client equipment 20, if an accompanying information distribution demand is received.

[0030] (2) The accompanying information distribution control means 112 of server equipment 10 and the accompanying information distribution means 114 continue distributing accompanying information at fixed spacing. Moreover, the accompanying information control means 213 of client equipment 20 compares the accompanying information distributed at fixed spacing with the accompanying information acquired at the time of transmission of an image voice delivery information demand, and when these differ, it changes accompanying information.

[0031] (3) The accompanying information distribution demand transmitting means 214 of client equipment 20 advances a distribution demand of accompanying information to server equipment 10 at the time of playback initiation of an image and speech information. If a distribution demand of accompanying information is received, the accompanying information distribution control means 112 of server equipment 10 and the accompanying information distribution means 114 will synchronize, will perform distribution of an image and speech information, and distribution of accompanying information, and will distribute the accompanying information corresponding to each part of an image to client equipment 20.

[0032] (4) The image and the voice playback location extract means 206 of client equipment 20 acquire an image and voice playback positional information, when a user gives an acquisition demand of accompanying information during playback of an image and speech information. Moreover, the accompanying information distribution demand transmitting means 214 transmits a distribution demand of the accompanying information accompanied by the acquired image and voice playback positional information to server equipment 10. The accompanying information distribution means 114 of server equipment 10 will distribute the accompanying information corresponding to the received image and voice playback location, if this distribution demand is received.

[0033] (5) When modification arises to accompanying information, the accompanying information distribution control means 112 of server equipment 10 recognizes that modification arose, and directs distribution of the accompanying information which the modification produced for the accompanying information distribution means 114. The accompanying information distribution means 114 distributes the accompanying information which modification produced to client equipment 20, when the notice of modification of accompanying information is received from the accompanying information distribution control means 112.

[0034] By each of these means, this invention has the accompanying information distribution function that the server equipment 10 which an image and speech information distributed, and client equipment 20 transmitted an accompanying information distribution demand to server equipment 10 in addition to the image and the voice distribution regenerative function to which client equipment 20 reproduces an image and voice, and received a distribution demand distributes accompanying information, and the external device starting function that client equipment 20 calls an external device 30 based on accompanying information, in server equipment 10. Below, the flow of the processing in the gestalt of each operation is explained.

[0035] [Gestalt of the 1st operation] Drawing 3 is drawing for explaining the flow of the processing in the gestalt of the 1st operation. The flow of the processing shown in drawing 3 between server equipment 10 and client equipment 20 When an image and a speech information distribution demand are transmitted from client equipment 20 to server equipment 10 Client equipment 20 playback of an image and voice Before starting, when all the information on image information and accompanying information is distributed to client equipment 20 from server equipment 10, and accompanying information is periodically distributed to client equipment 20 from server equipment 10 and modification arises to accompanying information, modification of accompanying information In the approach of performing, it is a thing when using accompanying information.

[0036] If an image and a speech information distribution demand signal, and an accompanying information distribution demand signal are transmitted to server equipment 10 from the image and the speech information distribution demand transmitting means 204 of client equipment 20,

the image and the speech information distribution demand receiving means 103 of server equipment 10, and the accompanying information distribution demand receiving means 113 will receive each signal (S101, S102). Server equipment 10 will distribute all the demanded required information on an image and speech information to client equipment 20 from an image and the speech information distribution means 104, if an image and a speech information distribution demand signal are received (S103). All the information on the accompanying information which accompanies the image and speech information to distribute is also then distributed to client equipment 20 from the accompanying information distribution means 114 at coincidence (S104).

[0037] With client equipment 20, an image and the speech information receiving means 205, and the accompanying information receiving means 215 receive all images and speech information, and all accompanying information, respectively, and playback of an image and voice is started (S105). However, when the demanded image and speech information, or accompanying information is not distributed, client equipment 20 transmits a resending demand of an image and speech information, and accompanying information to server equipment 10 from an image and the speech information distribution demand transmitting means 204, and the accompanying information distribution demand transmitting means 214, respectively, and requires distribution of an image and speech information, or accompanying information from server equipment 10 again.

[0038] Server equipment 10 distributes accompanying information to client equipment 20 from the accompanying information distribution means 114 at fixed spacing. The accompanying information control means 213 of client equipment 20 performs the comparison with the accompanying information which acquired to the image and the speech-information distribution demand whenever the accompanying information receiving means 215 received accompanying information, and the accompanying information which newly received, and when the accompanying information which acquired to an image and the speech-information distribution demand differs from the accompanying information which newly received, the accompanying information hold replaces to the accompanying information newly received (S106).

[0039] A user inputs the use demand of the function of an external device 30 into client equipment 20 from the accompanying information actuation means 211, when checking a playback image and voice and using the function of an external device 30 (S107). If the use demand of the function of an external device 30 is inputted, the playback control means 203 will suspend playback of an image and voice, and will pass playback halt positional information to an image and the voice playback location extract means 206 (S108, S109). Playback halt positional information is also passed at coincidence to the accompanying information control means 213.

[0040] If playback halt positional information is received, the accompanying information control means 213 will be referring to playback halt positional information with reference to the accompanying information received from server equipment 10, and it will opt for the action (it is henceforth called external information starting conditions) which should perform an external device 30 (S110).

[0041] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. The external device control means 216 will start an external device 30 based on external information starting conditions, if external information starting conditions are received.

[0042] for example, if elapsed time sets to L_t ($0 < L_t < L_1$) when recognizing each part of an image and voice by the elapsed time from playback initiation, if accompanying information as shown in drawing 4 is taken for an example, it will judge from the specific information of Location — information[0] 401 become effective. When the user has chosen the WWW browser as an external device 30 at this time, a WWW browser opens URL of `http://www.*****` according to the parameter of "Browser[0] =`http://www.*****`" currently written to information[0] 401 of accompanying information (S111).

[0043] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting

conditions (S112).

[0044] If a user suspends use of an external device 30, the external device control means 216 will detect the terminate signal of an external device 30 (S113). The external device control means 216 will advance the resumption demand of playback to the playback control means 203, if the terminate signal of an external device 30 is detected. If the resumption demand of playback is received, the playback control means 203 will acquire playback halt positional information from an image and the voice playback location extract means 206, and will resume playback from a playback halt location (S114).

[0045] As mentioned above, with the gestalt of this operation, client equipment 20 receives accompanying information periodically. Thereby, when modification arises to accompanying information, client equipment 20 acquires the changed accompanying information from server equipment 10, and the synchronization with playback of the image and voice in client equipment 20 and the changed accompanying information of it is attained.

[0046] [Gestalt of the 2nd operation] Drawing 5 is drawing for explaining the flow of the processing in the gestalt of the 2nd operation. The flow of the processing shown in drawing 5 is a thing when using accompanying information, when an image and a speech information distribution demand are transmitted from client equipment 20 to server equipment 10 between server equipment 10 and client equipment 20, and starting playback of an image and voice at the same time client equipment 20 receives the image information and the accompanying information distributed from server equipment 10.

[0047] If an image and a speech information distribution demand signal, and an accompanying information distribution demand signal are transmitted to server equipment 10 from the image and the speech information distribution demand transmitting means 204 of client equipment 20, the image and the speech information distribution demand receiving means 103 of server equipment 10, and the accompanying information distribution demand receiving means 113 will receive these signals, respectively (S201, S202). Server equipment 10 will distribute continuously the demanded image and speech information to client equipment 20 from an image and the speech information distribution means 104, if an image and a speech information distribution demand signal are received (S203). The accompanying information which accompanies the image and speech information to distribute is also then distributed to client equipment 20 continuously from the accompanying information distribution means 114 at coincidence (S204).

[0048] Client equipment 20 will start playback of an image and voice to reception and coincidence, if an image and the speech information receiving means 205, and the accompanying information receiving means 215 receive an image and speech information, and accompanying information, respectively (S205). However, when the existence of loss of the information sent on a communication network 100 is checked and informational loss is accepted, client equipment 20 transmits a resending demand of the information lost to server equipment 10 about each of an image and speech information, or accompanying information from an image and the speech information distribution demand transmitting means 204, and the accompanying information distribution demand transmitting means 214.

[0049] Moreover, before reproducing an image and voice, it is necessary to do the activity which takes the synchronization with the image and speech information, and accompanying information which were distributed. Therefore, an image, speech information, and accompanying information need to be beforehand acquired, in case an image and voice are reproduced, and acquisition of an image, speech information, and accompanying information is performed in advance of playback of an image and voice. For example, if the time amount for 3 seconds is required for the synchronization of processing of a resending demand of information, an image and speech information, and accompanying information, as for client equipment 20, the image and speech information for 3 seconds, and accompanying information will be acquired before playback of an image and voice at least.

[0050] A user inputs the use demand of the function of an external device 30 into client equipment 20 from the accompanying information actuation means 211, when checking a playback image and voice and using the function of an external device 30 (S206). If the use demand of the function of an external device 30 is inputted, the playback control means 203 will

pass the playback positional information at the time of the use demand of the function of an external device 30 being inputted to the accompanying information control means 213 (S207, S208).

[0051] If playback positional information is received, with reference to the accompanying information received from server equipment 10, the accompanying information control means 213 will be referring to playback positional information, and will determine external information starting conditions (S209).

[0052] If elapsed time sets to L_t ($0 < L_t < L_1$) when recognizing each part of an image and voice by the elapsed time from playback initiation, if the accompanying information shown in drawing 4 is taken for an example, information[0] 401 will become effective. When the user has chosen the WWW browser as an external device 30 at this time, a WWW browser opens URL of `http://www.*****` according to the parameter of "Browser[0] =`http://www.*****`" currently written to information[0] 401 of accompanying information (S210).

[0053] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting conditions (S211).

[0054] A user's halt of use of an external device 30 checks that the external device control means 216 detected the terminate signal of an external device 30, and the external device 30 has ended it (S212).

[0055] As mentioned above, with the gestalt of this operation, client equipment 20 receives accompanying information continuously. Thereby, when modification arises to accompanying information, client equipment 20 acquires the always changed accompanying information from server equipment 10, and the synchronization with playback of the image and voice in client equipment 20 and the changed accompanying information of it is attained.

[0056] [Gestalt of the 3rd operation] Drawing 6 is drawing for explaining the flow of the processing in the gestalt of the 3rd operation. The flow of the processing shown in drawing 6 between server equipment 10 and client equipment 20 When an image and a speech information distribution demand are transmitted from client equipment 20 to server equipment 10 When all the information on image information is distributed to client equipment 20 from server equipment 10 before client equipment 20 started playback of an image and voice, and the use demand of the function of an external device 30 is inputted from a user about accompanying information It is a thing when using accompanying information in the approach of transmitting a distribution demand to chisel server equipment 10, and distributing to client equipment 20.

[0057] If an image and a speech information distribution demand signal are transmitted to server equipment 10 from the image and the speech information distribution demand transmitting means 204 of client equipment 20, the image and the speech information distribution demand receiving means 103 of server equipment 10 will receive an image and a speech information distribution demand signal (S301). Server equipment 10 will distribute the demanded information on an image and speech information to client equipment 20 from an image and the speech information distribution means 104, if an image and a speech information distribution demand signal are received (S302).

[0058] If an image and the speech information receiving means 205 receive all images and speech information, client equipment 20 will start playback of an image and voice (S303). However, when the demanded image and speech information are not distributed, client equipment 20 transmits a resending demand of an image and speech information, and accompanying information to server equipment 10 from an image and the speech information distribution demand transmitting means 204, and the accompanying information distribution demand transmitting means 214, respectively, and requires distribution of an image and speech information, or accompanying information from server equipment 10 again.

[0059] A user inputs the use demand of the function of an external device 30 into client equipment 20 from the accompanying information actuation means 211, when checking a playback image and voice and using the function of an external device 30 (S304). If the use

demand of the function of an external device 30 is inputted, the playback control means 203 will pass the image and voice playback positional information at the time of the use demand of the function of an external device 30 being inputted to the accompanying information control means 213 (S305, S306).

[0060] If playback positional information is received, the accompanying information control means 213 will transmit a distribution demand of accompanying information from the accompanying information distribution demand transmitting means 214 while transmitting an image and voice playback positional information to server equipment 10 (S307). If an image and voice playback positional information, and an accompanying information distribution demand are received with the accompanying information distribution demand receiving means 113, server equipment 10 will decide the accompanying information which should be distributed to client equipment 20 based on an image and voice playback positional information, and will distribute accompanying information from the accompanying information distribution means 114 (S308). However, when the demanded accompanying information is not distributed, client equipment 20 transmits a resending demand of accompanying information from the accompanying information distribution demand transmitting means 214 to server equipment 10, and requires distribution of accompanying information from server equipment 10 again.

[0061] If the accompanying information receiving means 215 receives accompanying information, external information starting conditions will be determined based on accompanying information (S309). If external device starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting conditions.

[0062] If elapsed time sets to Lt ($0 < Lt < L1$) when recognizing each part of an image and voice by the elapsed time from playback initiation, if the accompanying information shown in drawing 4 is taken for an example, information[0] 401 will become effective. When the user has chosen the WWW browser as an external device at this time, a WWW browser opens URL of `http://www.*****` according to the parameter of "Browser[0] = `http://www.*****`" currently written to information[0] 401 of accompanying information (S310).

[0063] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting conditions (S311).

[0064] A user's halt of use of an external device 30 checks that the external device control means 216 detected the terminate signal of an external device 30, and the external device 30 has ended it (S312).

[0065] As mentioned above, with the gestalt of this operation, although client equipment 20 does not hold accompanying information in advance, it acquires accompanying information by requiring distribution of accompanying information of server equipment 10 according to the demand from a user. Consequently, when modification arises to accompanying information, client equipment 20 acquires the changed accompanying information which server equipment 10 has, and the synchronization with playback of the image and voice in client equipment 20 and the changed accompanying information of it is attained.

[0066] [Gestalt of the 4th operation] Drawing 7 is drawing for explaining the flow of the processing in the gestalt of the 4th operation. The flow of the processing shown in drawing 7 between server equipment 10 and client equipment 20 When an image and a speech information distribution demand are transmitted from client equipment 20 to server equipment 10 When client equipment 20 started playback of an image and voice, accompanying information acquires all required information from server equipment 10 before client equipment 20 started playback of an image and voice and modification of accompanying information arises at the same time it receives the image information distributed from server equipment 10 When server equipment 10 distributes ** and its modification information to client equipment 20, it is a thing when using

accompanying information.

[0067] If an image and a speech information distribution demand signal, and an accompanying information distribution demand signal are transmitted to server equipment 10 from the image and the speech information distribution demand transmitting means 204 of client equipment 20, the image and the speech information distribution demand receiving means 103 of server equipment 10, and the accompanying information distribution demand receiving means 113 will receive, respectively (S401, S402). Server equipment 10 will distribute the demanded image and speech information to client equipment 20 from an image and the speech information distribution means 104, if an image and a speech information distribution demand signal are received. All the information on the accompanying information which accompanies the image and speech information to distribute is also then distributed to client equipment 20 from the accompanying information distribution means 114 at coincidence (S403, S404).

[0068] If an image and the speech information receiving means 205 receive an image and speech information, client equipment 20 will start playback of an image and voice (S405). However, when the existence of loss of the information sent on a communication network 100 is checked and informational loss is accepted, client equipment 20 transmits a resending demand of the information lost to server equipment 10 about each of an image and speech information, and accompanying information from an image and the speech information distribution demand transmitting means 204, and the accompanying information distribution demand transmitting means 214.

[0069] Moreover, it is necessary to do the activity which takes the synchronization with the image and speech information, and accompanying information which were distributed before playback of an image and voice. Therefore, in case an image, speech information, and accompanying information reproduce an image and voice, they need to be acquired beforehand, and acquisition of an image, speech information, and accompanying information is performed in advance of playback of an image and voice. For example, if the time amount for 3 seconds is required for the synchronization of processing of a resending demand of information, an image and speech information, and accompanying information, as for client equipment 20, the image and speech information for 3 seconds, and accompanying information will be acquired before playback of an image and voice at least.

[0070] Server equipment 10 will distribute the changed accompanying information from the accompanying information distribution means 114 to client equipment 20, if modification of the accompanying information accumulated in the accompanying information storage means 111 is detected by the accompanying information distribution control means 112. Client equipment 20 performs the comparison with the accompanying information which acquired to an image and a speech-information distribution demand when the accompanying information receiving means 215 received the changed accompanying information, and the accompanying information which newly received, and when the accompanying information which acquired to an image and a speech-information distribution demand differs from the accompanying information which newly received, it replaces the accompanying information hold to the accompanying information newly received (S406).

[0071] A user inputs the use demand of the function of an external device 30 into client equipment 20 from the accompanying information actuation means 211, when checking a playback image and voice and using the function of an external device (S407).

[0072] If the use demand of the function of an external device 30 is inputted, the playback control means 203 will pass the playback positional information of the image and voice at the time of the use demand of the function of an external device 30 being inputted to the accompanying information control means 213 (S408, S409).

[0073] If playback positional information is received, with reference to the accompanying information received from server equipment 10, the accompanying information control means 213 will be referring to playback positional information, and will determine external information starting conditions (S410).

[0074] If elapsed time sets to L_t ($0 < L_t < L_1$) when recognizing each part of an image and voice by the elapsed time from playback initiation, if the accompanying information shown in drawing 4 is

taken for an example, information[0] 401 will become effective. When the user has chosen the WWW browser as an external device 30 at this time, a WWW browser opens URL of `http://www.*****` according to the parameter of "Browser[0] =`http://www.*****`" currently written to information[0] 401 of accompanying information (S411).

[0075] If external information starting conditions are determined, the accompanying information control means 213 will pass external information starting conditions to the external device control means 216. If external information starting conditions are received, the external device control means 216 will start an external device 30 based on external information starting conditions (S412).

[0076] A user's halt of use of an external device 30 checks that the external device control means 216 detected the terminate signal of an external device 30, and the external device 30 has ended it (S413).

[0077] As mentioned above, with the gestalt of this operation, client equipment 20 receives the new accompanying information changed at the time of modification of accompanying information. Thereby, when modification arises to accompanying information, client equipment 20 acquires the changed accompanying information from server equipment 10, and the synchronization with playback of the image and voice in client equipment 20 and the changed accompanying information of it is attained.

[0078] In addition, in the above explanation, it cannot be overemphasized that both of an image and voice are sufficient as either an image or voice. Moreover, although explanation of the gestalt of the above-mentioned implementation explained the example which distributes the image and speech information accumulated beforehand, in distribution of the image and speech information which has time constraint by distribution, for example from an information input like play-by-play broadcasting, this invention is applicable similarly.

[Translation done.]

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing showing the example of a configuration of server equipment.

[Drawing 2] It is drawing showing the example of a configuration of client equipment.

[Drawing 3] It is drawing for explaining the flow of the processing in the gestalt of the 1st operation.

[Drawing 4] It is drawing showing the example of accompanying information.

[Drawing 5] It is drawing for explaining the flow of the processing in the gestalt of the 2nd operation.

[Drawing 6] It is drawing for explaining the flow of the processing in the gestalt of the 3rd operation.

[Drawing 7] It is drawing for explaining the flow of the processing in the gestalt of the 4th operation.

[Description of Notations]**10 Server Equipment**

101 Image and Speech Information Are Recording Means

102 Image and Speech Information Distribution Control Means

103 Image and Speech Information Distribution Demand Receiving Means

104 Image and Speech Information Distribution Means

111 Accompanying Information Storage Means

112 Accompanying Information Distribution Control Means

113 Accompanying Information Distribution Demand Receiving Means

114 Accompanying Information Distribution Means

20 Client Equipment

201 Playback Image and Voice Output Means

202 Image and Speech Information Actuation Means

203 Playback Control Means

204 Image and Speech Information Distribution Demand Transmitting Means

205 Image and Speech Information Receiving Means

206 Image and Voice Playback Location Extract Means

211 Accompanying Information Actuation Means

212 Accompanying Information-Display Means

213 Accompanying Information Control Means

214 Accompanying Information Distribution Demand Transmitting Means

215 Accompanying Information Receiving Means

216 External Device Control Means

100 Communication Network

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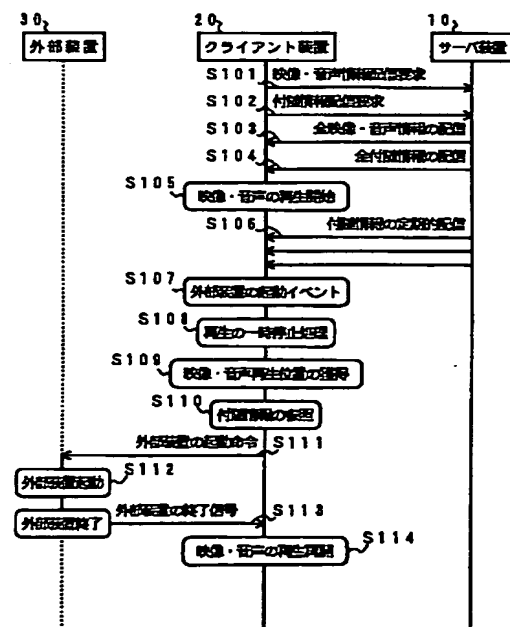
(54) 【発明の名称】 マルチメディア通信制御方法、そのシステムおよびそのプログラムを記録した記録媒体

(57) 【要約】

【課題】 通信ネットワークでサーバ装置からクライアント装置に映像・音声情報を配信し再生するシステムで、映像・音声の再生中でも、映像・音声情報に付随する外部装置を利用するための付随情報を変更可能にする。

【解決手段】 クライアント装置20は、映像・音声情報配信要求とともに、サーバ装置10に対して付随情報配信要求を送る。サーバ装置10は、要求された映像・音声情報を配信するとともに、要求された付随情報を配信する。その後、クライアント20が映像・音声の再生を開始した後も、定期的に新しい付随情報を取得する。ユーザが外部装置30の利用を要求すると、そのときの再生位置と付随情報とを照合し、外部装置30の起動条件を決定して外部装置30を呼び出す。

第1の実施の形態における処理の流れの例



【特許請求の範囲】

【請求項 1】 映像・音声情報を配信するサーバ装置と、該サーバ装置から配信された映像・音声情報を受信し再生するクライアント装置と、前記サーバ装置と前記クライアント装置とを接続する通信ネットワークとからなるシステムにおけるマルチメディア通信制御方法において、前記サーバ装置は、映像・音声情報に付随する情報であって、外部装置の機能を利用することにより映像・音声情報の内容を補完するための外部装置を利用する方法に関する情報を含む付随情報を、配信する映像・音声情報の各部分毎に保持し、前記クライアント装置から付随情報の配信要求を受けると、そのクライアント装置に対して映像・音声情報の再生前に必要な付随情報を配信し、その後、定期的に付随情報を配信し、前記クライアント装置は、前記サーバ装置に対して映像・音声情報の配信要求を送信するとともに、前記サーバ装置に対して付随情報の配信要求を送信し、配信された映像・音声情報の再生前に、前記サーバ装置から必要な付随情報を受信し、さらに定期的に前記サーバ装置から配信される付随情報を受信し、古い付随情報を新しい付随情報に置き換え、外部装置の機能を利用する場合には、配信された最新の付随情報に基づいて外部装置を呼び出すことを特徴とするマルチメディア通信制御方法。

【請求項 2】 映像・音声情報を配信するサーバ装置と、該サーバ装置から配信された映像・音声情報を受信し再生するクライアント装置と、前記サーバ装置と前記クライアント装置とを接続する通信ネットワークとからなるシステムにおけるマルチメディア通信制御方法において、前記サーバ装置は、映像・音声情報に付随する情報であって、外部装置の機能を利用することにより映像・音声情報の内容を補完するための外部装置を利用する方法に関する情報を含む付随情報を、配信する映像・音声情報の各部分毎に保持し、前記クライアント装置から付随情報の配信要求を受けると、そのクライアント装置に対して、配信する映像・音声情報の各部分に対応した付随情報を、映像・音声情報の各部分の配信と同期して継続的に行い、前記クライアント装置は、前記サーバ装置に対して映像・音声情報の配信要求を送信するとともに、前記サーバ装置に対して付随情報の配信要求を送信し、配信された映像・音声情報の各部分を継続的に受信し再生するとともに、その各部分に対応した付随情報を、その各部分の映像・音声情報の再生前に受信し、外部装置の機能を利用する場合には、再生中の映像・音声情報の部分に対応する付随情報に基づいて外部装置を呼び出すことを特徴とするマルチメディア通信制御方法。

【請求項 3】 映像・音声情報を配信するサーバ装置と、該サーバ装置から配信された映像・音声情報を受信し再生するクライアント装置と、前記サーバ装置と前記クライアント装置とを接続する通信ネットワークとからなるシステムにおけるマルチメディア通信制御方法にお

いて、前記サーバ装置は、映像・音声情報に付随する情報であって、外部装置の機能を利用することにより映像・音声情報の内容を補完するための外部装置を利用する方法に関する情報を含む付随情報を、配信する映像・音声情報の各部分毎に保持し、前記クライアント装置から映像・音声再生位置情報を指定した付随情報の配信要求を受けると、そのクライアント装置に対して、その映像・音声再生位置情報に対応した付随情報を要求元のクライアント装置へ配信し、前記クライアント装置は、前記サーバ装置に対して映像・音声情報の配信要求を送信し、それにより配信された映像・音声情報を再生し、映像・音声情報の再生中に外部装置の機能を利用するために付随情報が必要になったときに、その時点の映像・音声再生位置情報を伴う付随情報の配信要求を前記サーバ装置へ送信し、前記サーバ装置から付随情報を受信し、受信した付随情報に基づいて外部装置を呼び出すことを特徴とするマルチメディア通信制御方法。

【請求項 4】 映像・音声情報を配信するサーバ装置と、該サーバ装置から配信された映像・音声情報を受信し再生するクライアント装置と、前記サーバ装置と前記クライアント装置とを接続する通信ネットワークとからなるシステムにおけるマルチメディア通信制御方法において、前記サーバ装置は、映像・音声情報に付随する情報であって、外部装置の機能を利用することにより映像・音声情報の内容を補完するための外部装置を利用する方法に関する情報を含む付随情報を、配信する映像・音声情報の各部分毎に保持し、前記クライアント装置から付随情報の配信要求を受けると、そのクライアント装置に対して映像・音声情報の再生前に必要な付随情報を配信し、その後、付随情報に変更が加えられたかどうかを監視し、付随情報の変更を検出した場合に変更の生じた付随情報を前記クライアント装置に配信し、前記クライアント装置は、前記サーバ装置に対して映像・音声情報の配信要求を送信するとともに、前記サーバ装置に対して付随情報の配信要求を送信し、配信された映像・音声情報の再生前に、前記サーバ装置から必要な付随情報を受信し、変更の生じた付随情報が前記サーバ装置から配信されたときには古い付随情報を新しい付随情報に置き換え、外部装置の機能を利用する場合には配信された最新の付随情報に基づいて外部装置を呼び出すことを特徴とするマルチメディア通信制御方法。

【請求項 5】 映像・音声情報を配信するサーバ装置と、該サーバ装置から配信された映像・音声情報を受信し再生するクライアント装置と、前記サーバ装置と前記クライアント装置とを接続する通信ネットワークとからなるマルチメディア通信制御システムにおいて、前記サーバ装置は、映像・音声情報に付随する情報であって、外部装置の機能を利用することにより映像・音声情報の内容を補完するための外部装置を利用する方法に関する情報を含む付随情報を、配信する映像・音声情報の各部

分毎に保持する手段と、前記クライアント装置から映像・音声情報の配信要求を受けて、映像・音声情報を一括して、または各部分ごとに継続して配信する手段と、前記クライアント装置から付随情報の配信要求を受信する手段と、前記クライアント装置からの付随情報の配信要求に対して、前記クライアント装置における映像・音声情報の再生前もしくはその各部分の再生前に、少なくとも必要となる最新の付随情報を配信する、または前記クライアント装置からの映像・音声再生位置情報を指定した付随情報の配信要求に対して、その映像・音声再生位置情報に対応した付随情報を配信する手段とを備え、前記クライアント装置は、前記サーバ装置に対して映像・音声情報の配信要求を送信し、配信された映像・音声情報を再生する手段と、配信された映像・音声情報の再生前もしくはその各部分の再生前に、前記サーバ装置に対し付随情報の配信要求を送信する、または配信された映像・音声情報を再生中に付随情報が必要になったときに、前記サーバ装置に対し映像・音声再生位置情報を伴う付随情報の配信要求を送信する手段と、外部装置の機能を利用する場合に、前記サーバ装置から配信された最新の付随情報に基づいて外部装置を呼び出す外部装置制御手段とを備えることを特徴とするマルチメディア通信制御システム。

【請求項6】 映像・音声情報を、通信ネットワークを経由してクライアント装置に配信するマルチメディア通信制御システムにおけるサーバ装置が実行するプログラムを記録した記録媒体であって、配信する映像・音声情報の各部分毎に蓄積された映像・音声情報に付随する情報であって、外部装置の機能を利用することにより映像・音声情報の内容を補完するための外部装置を利用する方法に関する情報を含む付随情報を管理し、前記クライアント装置からの付随情報の配信要求時に読み出す処理と、前記クライアント装置から映像・音声情報の配信要求を受けて、映像・音声情報を一括して、または各部分ごとに継続して配信する処理と、前記クライアント装置から付随情報の配信要求を受信する処理と、前記クライアント装置からの付随情報の配信要求に対して、前記クライアント装置における映像・音声情報の再生前もしくはその各部分の再生前に、少なくとも必要となる最新の付随情報を配信する、または前記クライアント装置からの映像・音声再生位置情報を指定した付随情報の配信要求に対して、その映像・音声再生位置情報に対応した付随情報を配信する処理とを、計算機に実行させるプログラム記録したことを特徴とするマルチメディア通信制御システムにおけるサーバ装置のプログラムを記録した記録媒体。

【請求項7】 映像・音声情報を配信するサーバ装置から通信ネットワークを経由して配信された映像・音声情報を受信し再生するマルチメディア通信制御システムにおけるクライアント装置が実行するプログラムを記録し

た記録媒体であって、前記サーバ装置に対して映像・音声情報の配信要求を送信し、配信された映像・音声情報を再生する処理と、配信された映像・音声情報の再生前もしくはその各部分の再生前に、前記サーバ装置が映像・音声情報の各部分毎に保持する映像・音声情報に付随する情報であって、外部装置の機能を利用することにより映像・音声情報の内容を補完するための外部装置を利用する方法に関する情報を含む付随情報についての配信要求を前記サーバ装置に対し送信する、または配信された映像・音声情報を再生中に付随情報が必要になったときに、前記サーバ装置に対し映像・音声再生位置情報を伴う付随情報の配信要求を送信する処理と、外部装置の機能を利用する場合に、前記サーバ装置から配信された最新の付随情報に基づいて外部装置を呼び出す処理とを計算機に実行させるプログラム記録したことを特徴とするマルチメディア通信制御システムにおけるクライアント装置のプログラムを記録した記録媒体。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明は、通信ネットワーク上で、映像・音声情報の配信、再生を行うマルチメディア通信制御方法およびそのシステムに関するものである。

【0002】

【従来の技術】 現在、ネットワーク上で映像・音声情報の配信または再生を扱う技術において、配信・再生する映像・音声に対して、複数の映像・音声間におけるリンクのアンカーの設定、映像・音声の再生開始からの時間経過に伴うアンカーの設定の変化、他のプログラムや装置の機能の利用方法を規定する方法が存在する。

【0003】 その方法としては、ネットワーク上で映像・音声配信再生技術において複数の映像・音声の制御を行うWWWコンソーシアム(W3C)規格のSMILに代表される方法や、WWWブラウザで表示されるHTMLにおいて複数の映像・音声の制御を行うJavaScriptやCGI(Common Gateway Interface)に代表されるプログラム言語による制御方法が存在する。

【0004】 上記の方法において、配信・再生される映像・音声に対するハイパーリンクの設定方法や他の装置の利用方法など、映像・音声情報に付随する情報(以降、付随情報という)の蓄積方法や配信方法における処理方法を示すと、配信・再生する映像・音声の指定情報の処理方法と付随情報の処理方法には差異がない。

【0005】 例えば、SMILでは、配信・再生する映像・音声の指定情報と付随情報は同一の場所に記述されている。また、JavaScript、CGIでは、プログラムの参照するデータベースとして、配信・再生する映像・音声の指定情報と付随情報は同一の情報として同一のプログラム内に記述されている。

【0006】

【発明が解決しようとする課題】上記のように映像・音声情報の再生方法と付随情報を扱う方法においては、映像や音声の再生中、とりわけライブ中継やラジオ放送をネットワーク上で放送するときに、クライアント装置においてリンクのアンカー情報の変更を行うことができなかった。

【0007】例をあげると、SMILでは、クライアント装置は、映像の再生開始時にすべての付随情報についての情報をサーバ装置から取得する。したがって、再生開始後に付随情報を変更した場合、すでにサーバ装置から付随情報を獲得し、映像・音声の再生を行っているクライアント装置に対し、変更内容を通知することができなかった。

【0008】JavaScriptにおいては、WWWブラウザがHTMLの情報の獲得時にすべての付随情報の内容を獲得するので、同様の理由によりクライアント装置に付随情報の変更内容を通知することができなかった。

【0009】また、CGIを利用する場合には、WWWブラウザの表示コンテンツに、リンク先としてCGIプログラムを指定することで、クライアント装置に付随情報の変更を通知することが可能であったが、サーバ装置から付随情報の変更を送るタイミングと、クライアント装置が映像・音声を再生するタイミングとの同期は、とられていなかった。

【0010】本発明は、従来の技術を用いて通信ネットワーク上で映像・音声情報を配信する場合に生じていた、映像・音声の再生中には付随情報の変更ができないという問題を解決し、映像・音声の再生中においても付随情報の変更をクライアント装置に通知し、映像・音声の再生と付随情報の変更に同期をとることを可能とすることを目的とする。

【0011】

【課題を解決するための手段】本発明は、以上の目的を達成するために、通信ネットワーク上でサーバ装置からクライアント装置に映像・音声情報を配信し、再生を行う映像・音声配信方法において、映像・音声情報とは別に付随情報の配信と受信とを行い、映像や音声の再生中においても、サーバ装置とクライアント装置間で付随情報の配信と変更の通知を行えるようにしたことを特徴とする。

【0012】上記のように映像や音声の再生中においても、サーバ装置とクライアント装置間で付随情報の配信と変更を行えるようにするために、例えば以下のような各機能を持つ手段を、サーバ装置とクライアント装置に設ける。

【0013】サーバ装置には、映像・音声情報に付随し、外部装置の機能を利用することにより映像・音声情報の内容を補完する方法に関する情報を含む付随情報を、映像・音声の各部分毎に保持し蓄積する付随情報蓄積手段と、クライアント装置からの付随情報配信要求を

受ける付随情報配信要求受信手段と、付随情報を配信する付随情報配信手段と、蓄積した付随情報の管理と付随情報の配信の管理を行う付随情報配信制御手段とを設ける。

【0014】また、クライアント装置には、ユーザの要求に基づいて付随情報の配信をサーバ装置に要求する付随情報配信要求送信手段と、付随情報の配信要求を送信したときに映像・音声の再生位置を獲得する映像・音声再生位置抽出手段と、サーバ装置から配信してきた付随情報を受信する付随情報受信手段と、受信した付随情報を解読し、付随情報の対応する映像・音声の再生位置と実際に再生している再生映像・音声位置との同期をとる付随情報制御手段と、受信した付随情報を表示する付随情報表示手段と、付随情報のユーザからの配信要求の入力、および付随情報表示手段から利用する外部装置を選択するための付随情報操作手段と、付随情報操作手段からの入力に基づいて外部装置を起動させる外部装置制御手段とを設ける。

【0015】本発明の作用は、以下のとおりである。上述の手段を持つサーバ装置およびクライアント装置において、クライアント装置の付随情報配信要求送信手段とサーバ装置の付随情報配信要求受信手段は、映像・音声情報の配信要求とは独立して、付随情報の配信要求をクライアント装置からサーバ装置に送信している。サーバ装置においては、付随情報蓄積手段、付随情報配信制御手段、付随情報配信手段が付随情報の配信処理を行うことで、映像・音声情報の配信処理とは独立して付随情報の配信を行っている。

【0016】一方、クライアント装置においては、付随情報受信手段と付随情報制御手段を設けることで、付随情報の受信処理を映像・音声情報の受信処理とは独立して行っており、また付随情報表示手段、付随情報操作手段、外部装置制御手段を設けることで、映像・音声の再生とは独立して外部装置の利用を行っている。

【0017】したがって、本発明では、映像・音声情報の配信または再生の処理とは独立して、付随情報の配信または受信を行うことが可能となり、サーバ装置、クライアント装置が映像・音声情報の配信または再生中においても、クライアント装置に対して付随情報の変更を通知することが可能となり、クライアント装置において映像・音声の再生と付随情報の変更の同期をとることが可能になる。

【0018】以上のサーバ装置およびクライアント装置の各処理手段を計算機によって実現するためのプログラムは、計算機が読み取り可能な可搬媒体メモリ、半導体メモリ、ハードディスクなどの適当な記録媒体に格納することができる。

【0019】

【発明の実施の形態】以下、本発明の実施の形態について、図を用いて説明する。図1は、本発明に係るサーバ

装置の構成例を示す図であり、図2は、本発明に係るクライアント装置の構成例を示す図である。サーバ装置10とクライアント装置20とは、通信ネットワーク100を経由して接続される。一般に、クライアント装置20は、通信ネットワーク100に複数台接続されている。

【0020】図1に示すように、サーバ装置10は、映像・音声情報を蓄積する映像・音声情報蓄積手段101と、映像・音声情報の配信を制御する映像・音声情報配信制御手段102と、クライアント装置20からの映像・音声情報配信要求を受信する映像・音声情報配信要求受信手段103と、蓄積した映像・音声情報を配信する映像・音声情報配信手段104と、映像・音声情報に付随し、外部装置30（図示しない）の機能を利用することにより映像・音声情報の内容を補完するための外部装置30を利用する方法に関する情報を含む付随情報を、映像・音声情報の各部分毎に蓄積し保持する付随情報蓄積手段111と、蓄積した付随情報の管理と付随情報の配信の管理を行う付随情報配信制御手段112と、クライアント装置20からの付随情報配信要求を受信する付随情報配信要求受信手段113と、付随情報を配信するための付随情報配信手段114とを備える。上記映像・音声情報蓄積手段101の代わりに、または映像・音声情報蓄積手段101の他に、カメラ等からの映像・音声情報入力手段を用いることもできる。

【0021】ここで、外部装置30の機能を利用するとは、必ずしも以下に説明するものに限定されるわけではないが、例えばある映像・音声の再生中に、その再生中の部分に関係する特定の通話先のインターネット電話を利用したり、WWWブラウザにより特定のホームページにアクセスしたり、特定のFTP（File Transfer Protocol）サーバにアクセスして、あるファイルを転送したり獲得したりするというようなことである。

【0022】図2に示すように、クライアント装置20は、再生された映像・音声を出力する再生映像・音声出力手段201と、配信された映像・音声情報を操作する映像・音声情報操作手段202と、配信された映像・音声情報の再生を制御する再生制御手段203と、映像・音声情報配信要求をサーバ装置10に送信する映像・音声情報配信要求送信手段204と、配信された映像・音声情報を受信する映像・音声情報受信手段205と、映像・音声再生中にユーザが付随情報の獲得要求を出した場合に、映像・音声再生位置を獲得する映像・音声再生位置抽出手段206と、ユーザからの付随情報の配信要求を入力し、付随情報表示手段212から利用する外部装置30を選択する付随情報操作手段211と、受信した付随情報を表示する付随情報表示手段212と、受信した付随情報を解読し、付随情報の対応する映像・音声再生位置と実際に再生制御手段203が再生している映像・音声再生位置との同期をとる付随情報制御手段21

3と、ユーザの要求に基づいて付随情報の配信をサーバ装置10に要求する付随情報配信要求送信手段214と、サーバ装置10から配信してきた付随情報を受信する付随情報受信手段215と、付随情報操作手段211からの入力に基づいて外部装置30を起動させる外部装置制御手段216とを備える。

【0023】例えば再生中の映像・音声情報の部分に付随する付随情報として、(a) 外部装置にインターネット電話を利用するときの通話先情報、(b) 外部装置にWWWブラウザを利用するときの接続先情報、(c) 外部装置にFTPサーバを利用するときの接続先情報、が設定されているとき、付随情報操作手段211がユーザから付随情報の利用要求を入力すると、付随情報表示手段212は、付随情報操作手段211からの通知により、そのときの付随情報に基づいて、利用可能な外部装置として、(a) インターネット電話、(b) WWWブラウザ、(c) FTPサーバがあることを表示する。ユーザが付随情報操作手段211により外部装置を選択すると、外部装置制御手段216に対して、そのときの付随情報とユーザの選択情報とが通知され、外部装置制御手段216は、通知された付随情報に基づいてユーザが選択した外部装置30を呼び出す。

【0024】サーバ装置10およびクライアント装置20における映像・音声情報の配信に関する手段として、例えば以下の(1)～(3)の実装が可能である。

【0025】(1) クライアント装置20の映像・音声情報配信要求送信手段204は、サーバ装置10に対して映像・音声情報配信要求を送信する。サーバ装置10の映像・音声情報配信手段104は、クライアント装置20の再生制御手段203が映像・音声の再生を開始する前に、映像・音声情報の全情報をクライアント装置20に配信する。

【0026】(2) クライアント装置20の映像・音声情報配信要求送信手段204は、サーバ装置10に対して映像・音声情報配信要求を送信する。再生制御手段203は、サーバ装置10が映像・音声情報の配信を開始した時に、映像・音声情報の一部分をクライアント装置20が受信すると同時に映像・音声の再生を開始する。

【0027】(3) クライアント装置20の映像・音声情報配信要求送信手段204は、サーバ装置10に対して映像・音声情報配信要求を送信する。サーバ装置10の映像・音声情報配信手段104は、サーバ装置10に映像・音声情報配信要求を出した単数もしくは複数のクライアント装置20に対して、同内容の映像・音声情報を同時に配信する。

【0028】また、サーバ装置10およびクライアント装置20における付随情報の配信に関する手段として、例えば以下の(1)～(5)の実装が可能である。

【0029】(1) クライアント装置20の付随情報配信要求送信手段214は、映像・音声情報の再生開始時

にサーバ装置10に対して付随情報の配信要求を送信する。サーバ装置10の付随情報配信制御手段112と付随情報配信手段114は、付随情報配信要求を受けると、クライアント装置20の映像・音声の再生開始前に、クライアント装置20に対して必要な付随情報を配信する。

【0030】(2)サーバ装置10の付随情報配信制御手段112と付随情報配信手段114は、一定間隔で付随情報を配信し続ける。また、クライアント装置20の付随情報制御手段213は、一定間隔で配信される付随情報と映像音声配信情報要求の送信時に獲得した付随情報とを比較し、これらが異なる場合に付随情報の変更を行う。

【0031】(3)クライアント装置20の付随情報配信要求送信手段214は、映像・音声情報の再生開始時に、サーバ装置10に対して付随情報の配信要求を出す。サーバ装置10の付随情報配信制御手段112と付随情報配信手段114は、付随情報の配信要求を受けると、映像・音声情報の配信と付随情報の配信を同期して行い、映像の各部分に対応した付随情報をクライアント装置20に配信する。

【0032】(4)クライアント装置20の映像・音声再生位置抽出手段206は、映像・音声情報の再生中にユーザが付随情報の獲得要求を出した時に、映像・音声再生位置情報を獲得する。また、付随情報配信要求送信手段214は、サーバ装置10に対して、獲得した映像・音声再生位置情報を伴う付随情報の配信要求を送信する。サーバ装置10の付随情報配信手段114は、この配信要求を受けると、受信した映像・音声再生位置に対応した付随情報を配信する。

【0033】(5)サーバ装置10の付随情報配信制御手段112は、付随情報に変更が生じた場合に、変更が生じたことを認識し、付随情報配信手段114にその変更の生じた付随情報の配信を指示する。付随情報配信手段114は、付随情報配信制御手段112から付随情報の変更の通知を受けた場合に変更の生じた付随情報をクライアント装置20に対して配信する。

【0034】これらの各手段により、本発明は、サーバ装置10が映像・音声情報を配信し、クライアント装置20が映像・音声を再生する映像・音声配信再生機能に加えて、クライアント装置20が、サーバ装置10に付随情報配信要求を送信し、配信要求を受けたサーバ装置10が付随情報を配信する付随情報配信機能と、クライアント装置20が、付随情報に基づいて外部装置30を呼び出す外部装置起動機能を有する。以下に、各実施の形態における処理の流れを説明する。

【0035】【第1の実施の形態】図3は、第1の実施の形態における処理の流れを説明するための図である。図3に示す処理の流れは、サーバ装置10とクライアント装置20間で、クライアント装置20からサーバ装置

10に対して映像・音声情報配信要求を送信したときに、クライアント装置20が映像・音声の再生を開始する前に、映像情報・付随情報のすべての情報を、サーバ装置10からクライアント装置20に配信し、また、付随情報を定期的にサーバ装置10からクライアント装置20に配信し、付随情報に変更が生じる場合に付随情報の変更を行う方法において、付随情報を利用するときのものである。

【0036】クライアント装置20の映像・音声情報配信要求送信手段204から、サーバ装置10に対して映像・音声情報配信要求信号と付随情報配信要求信号を送信すると、それぞれの信号をサーバ装置10の映像・音声情報配信要求受信手段103と付随情報配信要求受信手段113が受信する(S101, S102)。サーバ装置10は映像・音声情報配信要求信号を受信すると、要求された映像・音声情報の必要な全情報を、映像・音声情報配信手段104からクライアント装置20に配信する(S103)。その時、配信する映像・音声情報に付随する付随情報の全情報も、同時に付随情報配信手段114からクライアント装置20に配信する(S104)。

【0037】クライアント装置20では、全映像・音声情報と全付随情報をそれぞれ映像・音声情報受信手段205と付随情報受信手段215とで受信し、映像・音声の再生を開始する(S105)。ただし、クライアント装置20は要求した映像・音声情報または付随情報が配信されてこなかった場合には、サーバ装置10に対して映像・音声情報、付随情報の再送要求をそれぞれ映像・音声情報配信要求送信手段204、付随情報配信要求送信手段214から送信し、再度、サーバ装置10に対して映像・音声情報または付随情報の配信を要求する。

【0038】サーバ装置10は、一定間隔で付随情報を付随情報配信手段114からクライアント装置20に配信する。クライアント装置20の付随情報制御手段213は、付随情報受信手段215で付随情報を受信するたびに、映像・音声情報配信要求時に獲得した付随情報と新たに受信した付随情報との比較を行い、映像・音声情報配信要求時に獲得した付随情報と新たに受信した付随情報が異なるときには、保持する付随情報を新たに受信した付随情報に置き換える(S106)。

【0039】ユーザは再生映像・音声を確認し、外部装置30の機能を利用するときには、外部装置30の機能の利用要求を付随情報操作手段211からクライアント装置20に入力する(S107)。外部装置30の機能の利用要求が入力されると、再生制御手段203は映像・音声の再生を一時停止し、再生停止位置情報を映像・音声再生位置抽出手段206に渡す(S108, S109)。同時に付随情報制御手段213にも再生停止位置情報を渡す。

【0040】再生停止位置情報を受け取ると、付随情報

制御手段213はサーバ装置10から受信した付随情報を参照し、再生停止位置情報と照らし合わせることで、外部装置30の実行すべき行動（以降、外部情報起動条件という）を決定する（S110）。

【0041】外部情報起動条件が決定すると、付随情報制御手段213は外部装置制御手段216に外部情報起動条件を渡す。外部装置制御手段216は、外部情報起動条件を受け取ると、外部情報起動条件に基づいて外部装置30を起動する。

【0042】例えば、図4に示すような付随情報を例にとると、再生開始からの経過時間で映像・音声の各部分を認識する場合、経過時間が Lt ($0 < Lt < L1$)とすると、Locationの特定情報から判定して、`information[0]401`が有効になる。この時、ユーザが外部装置30としてWWWブラウザを選択していた場合には、WWWブラウザは付随情報の`information[0]401`に書かれている「`Browser[0]=http://www.*****`」のパラメータに従い、`http://www.*****`のURLを開く（S111）。

【0043】外部情報起動条件が決定すると、付随情報制御手段213は外部装置制御手段216に外部情報起動条件を渡す。外部情報起動条件を受け取ると、外部装置制御手段216は、外部情報起動条件に基づいて外部装置30を起動する（S112）。

【0044】ユーザが外部装置30の利用を停止すると、外部装置制御手段216は、外部装置30の終了信号を検出する（S113）。外部装置制御手段216は、外部装置30の終了信号を検出すると再生制御手段203に対して、再生再開要求を出す。再生再開要求を受けると再生制御手段203は、映像・音声再生位置抽出手段206から再生停止位置情報を獲得し、再生停止位置から再生を再開する（S114）。

【0045】以上のように、本実施の形態では、クライアント装置20は定期的に付随情報を受信する。これにより、付随情報に変更が生じた場合に、クライアント装置20は変更された付随情報をサーバ装置10から獲得し、クライアント装置20における映像・音声の再生と変更された付随情報との同期が可能となる。

【0046】〔第2の実施の形態〕図5は、第2の実施の形態における処理の流れを説明するための図である。図5に示す処理の流れは、サーバ装置10とクライアント装置20間で、クライアント装置20からサーバ装置10に対して映像・音声情報配信要求を送信したときに、サーバ装置10から配信する映像情報・付随情報をクライアント装置20が受信すると同時に映像・音声の再生を開始する場合において、付随情報を利用するときのものである。

【0047】クライアント装置20の映像・音声情報配信要求送信手段204から、サーバ装置10に対して映像・音声情報配信要求信号と付随情報配信要求信号を送

信すると、これらの信号を、それぞれサーバ装置10の映像・音声情報配信要求受信手段103と付随情報配信要求受信手段113が受信する（S201, S202）。サーバ装置10は映像・音声情報配信要求信号を受信すると、要求された映像・音声情報を、映像・音声情報配信手段104からクライアント装置20に継続的に配信する（S203）。その時、配信する映像・音声情報に付随する付随情報も、同時に付随情報配信手段114からクライアント装置20に継続的に配信する（S204）。

【0048】クライアント装置20は、映像・音声情報と付随情報とをそれぞれ映像・音声情報受信手段205と付随情報受信手段215で受信すると、受信と同時に映像・音声の再生を開始する（S205）。ただし、通信ネットワーク100上で送られてくる情報の損失の有無を確認し、情報の損失が認められる場合には、クライアント装置20はサーバ装置10に対して損失した情報の再送要求を映像・音声情報または付随情報のそれぞれについて映像・音声情報配信要求送信手段204、付随情報配信要求送信手段214から送信する。

【0049】また、配信された映像・音声情報と付随情報との同期をとる作業を、映像・音声を再生する前に行う必要がある。したがって、映像・音声情報および付随情報を映像・音声を再生する際に前もって獲得している必要があり、映像・音声情報および付随情報の獲得は、映像・音声の再生に先立って行う。例えば、情報の再送要求の処理、映像・音声情報、付随情報の同期に、3秒の時間が必要であれば、クライアント装置20は少なくとも3秒分の映像・音声情報、付随情報を映像・音声の再生よりも先に獲得する。

【0050】ユーザは再生映像・音声を確認し外部装置30の機能を利用するときには、外部装置30の機能の利用要求を付随情報操作手段211からクライアント装置20に入力する（S206）。外部装置30の機能の利用要求が入力されると、再生制御手段203は、外部装置30の機能の利用要求が入力された時点の再生位置情報を付随情報制御手段213に渡す（S207, S208）。

【0051】再生位置情報を受け取ると、付随情報制御手段213はサーバ装置10から受信した付随情報を参照し、再生位置情報と照らし合わせることで、外部情報起動条件を決定する（S209）。

【0052】図4に示す付随情報を例にとると、再生開始からの経過時間で映像・音声の各部分を認識する場合、経過時間が Lt ($0 < Lt < L1$)とすると、`information[0]401`が有効になる。この時、ユーザが外部装置30としてWWWブラウザを選択していた場合には、WWWブラウザは付随情報の`information[0]401`に書かれている「`Browser[0]=http://www.*****`」のパラメータに従い、`http://www.*****`のURLを

開く(S210)。

【0053】外部情報起動条件が決定すると、付随情報制御手段213は外部装置制御手段216に外部情報起動条件を渡す。外部情報起動条件を受け取ると、外部装置制御手段216は、外部情報起動条件に基づいて外部装置30を起動する(S211)。

【0054】ユーザが外部装置30の利用を停止すると、外部装置制御手段216は、外部装置30の終了信号を検出し、外部装置30が終了したことを確認する(S2-1-2)。

【0055】以上のように、本実施の形態では、クライアント装置20は継続的に付随情報を受信する。これにより、付随情報に変更が生じた場合に、クライアント装置20は常に変更された付随情報をサーバ装置10から獲得し、クライアント装置20における映像・音声の再生と変更された付随情報との同期が可能となる。

【0056】〔第3の実施の形態〕図6は、第3の実施の形態における処理の流れを説明するための図である。図6に示す処理の流れは、サーバ装置10とクライアント装置20間で、クライアント装置20からサーバ装置10に対して映像・音声情報配信要求を送信したときに、クライアント装置20が映像・音声の再生を開始する前にサーバ装置10からクライアント装置20に映像情報のすべての情報を配信し、付随情報についてはユーザから外部装置30の機能の利用要求が入力されたときのみサーバ装置10に対して配信要求を送信し、クライアント装置20に配信する方法において付随情報を利用するときのものである。

【0057】クライアント装置20の映像・音声情報配信要求送信手段204から、サーバ装置10に対して映像・音声情報配信要求信号を送信すると、サーバ装置10の映像・音声情報配信要求受信手段103が映像・音声情報配信要求信号を受信する(S301)。サーバ装置10は映像・音声情報配信要求信号を受信すると、要求された映像・音声情報の情報を、映像・音声情報配信手段104からクライアント装置20に配信する(S302)。

【0058】全映像・音声情報を映像・音声情報受信手段205で受信すると、クライアント装置20は映像・音声の再生を開始する(S303)。ただし、クライアント装置20は要求した映像・音声情報が配信されてこなかった場合には、サーバ装置10に対して映像・音声情報、付随情報の再送要求をそれぞれ映像・音声情報配信要求送信手段204、付随情報配信要求送信手段214から送信し、再度、サーバ装置10に対して映像・音声情報または付随情報の配信を要求する。

【0059】ユーザは再生映像・音声を確認し、外部装置30の機能を利用するときには、外部装置30の機能の利用要求を付随情報操作手段211からクライアント装置20に入力する(S304)。外部装置30の機能

の利用要求が入力されると、再生制御手段203は、外部装置30の機能の利用要求が入力された時点における映像・音声再生位置情報を付随情報制御手段213に渡す(S305, S306)。

【0060】再生位置情報を受け取ると、付随情報制御手段213は、サーバ装置10に対して、映像・音声再生位置情報を送信するとともに、付随情報の配信要求を付随情報配信要求送信手段214から送信する(S307)。映像・音声再生位置情報と付随情報配信要求を付随情報配信要求受信手段113で受け取ると、サーバ装置10は映像・音声再生位置情報をもとに、クライアント装置20に配信すべき付随情報を確定し、付随情報を付随情報配信手段114から配信する(S308)。ただし、クライアント装置20は要求した付随情報が配信されてこなかった場合には、サーバ装置10に対して付随情報の再送要求を付随情報配信要求送信手段214から送信し、再度、サーバ装置10に対して付随情報の配信を要求する。

【0061】付随情報受信手段215で付随情報を受信すると、付随情報をもとに外部情報起動条件を決定する(S309)。外部装置起動条件が決定すると付随情報制御手段213は外部装置制御手段216に外部情報起動条件を渡す。外部情報起動条件を受け取ると、外部装置制御手段216は、外部情報起動条件に基づいて外部装置30を起動する。

【0062】図4に示す付随情報を例にとると、再生開始からの経過時間で映像・音声の各部分を認識する場合、経過時間がLt ($0 < Lt < L1$) とすると、information[0]401が有効になる。この時、ユーザが外部装置としてWWWブラウザを選択していた場合には、WWWブラウザは付随情報のinformation[0]401に書かれている「Browser[0]=http://www.*****」のパラメータに従い、http://www.*****のURLを開く(S310)。

【0063】外部情報起動条件が決定すると、付随情報制御手段213は外部装置制御手段216に外部情報起動条件を渡す。外部情報起動条件を受け取ると、外部装置制御手段216は、外部情報起動条件に基づいて外部装置30を起動する(S311)。

【0064】ユーザが外部装置30の利用を停止すると、外部装置制御手段216は、外部装置30の終了信号を検出し、外部装置30が終了したことを確認する(S312)。

【0065】以上のように、本実施の形態では、クライアント装置20は事前に付随情報を保持しないが、ユーザからの要求に応じて、サーバ装置10に付随情報の配信を要求することで付随情報を獲得する。その結果、クライアント装置20は付随情報に変更が生じた場合に、サーバ装置10の持つ変更された付随情報を獲得し、クライアント装置20における映像・音声の再生と変更さ

れた付随情報との同期が可能となる。

【0066】〔第4の実施の形態〕図7は、第4の実施の形態における処理の流れを説明するための図である。図7に示す処理の流れは、サーバ装置10とクライアント装置20間で、クライアント装置20からサーバ装置10に対して映像・音声情報配信要求を送信したときに、サーバ装置10から配信する映像情報を受信すると同時にクライアント装置20は映像・音声の再生を開始し、付随情報はクライアント装置20が映像・音声の再生を開始する前に必要な情報すべてをサーバ装置10から獲得し、付随情報の変更が生じたときには、その変更情報をサーバ装置10がクライアント装置20に対して配信する場合に付随情報を利用するときのものである。

【0067】クライアント装置20の映像・音声情報配信要求送信手段204から、サーバ装置10に対して映像・音声情報配信要求信号と付随情報配信要求信号とを送信すると、それぞれサーバ装置10の映像・音声情報配信要求受信手段103と付随情報配信要求受信手段113が受信する(S401, S402)。サーバ装置10は映像・音声情報配信要求信号を受信すると、要求された映像・音声情報を、映像・音声情報配信手段104からクライアント装置20に配信する。その時、配信する映像・音声情報に付随する付随情報の全情報も、同時に付随情報配信手段114からクライアント装置20に配信する(S403, S404)。

【0068】映像・音声情報を映像・音声情報受信手段205で受信すると、クライアント装置20は映像・音声の再生を開始する(S405)。ただし、通信ネットワーク100上で送られてくる情報の損失の有無を確認し、情報の損失が認められる場合には、クライアント装置20はサーバ装置10に対して損失した情報の再送要求を映像・音声情報、付随情報のそれぞれについて映像・音声情報配信要求送信手段204、付随情報配信要求送信手段214から送信する。

【0069】また、配信された映像・音声情報と付随情報との同期をとる作業を映像・音声の再生の前に行う必要がある。したがって、映像・音声情報および付随情報は映像・音声を再生する際に前もって獲得している必要があり、映像・音声情報および付随情報の獲得は、映像・音声の再生に先立って行う。例えば、情報の再送要求の処理、映像・音声情報、付随情報の同期に、3秒の時間が必要であれば、クライアント装置20は少なくとも3秒分の映像・音声情報、付随情報を映像・音声の再生よりも先に獲得する。

【0070】サーバ装置10は、付随情報蓄積手段111に蓄積されている付随情報の変更を付随情報配信制御手段112で検出すると、クライアント装置20に対し、変更された付随情報を付随情報配信手段114から配信する。クライアント装置20は、変更された付随情報を付随情報受信手段215で受信すると、映像・音声

情報配信要求時に獲得した付随情報と新たに受信した付随情報との比較を行い、映像・音声情報配信要求時に獲得した付随情報と新たに受信した付随情報が異なるときには、保持する付随情報を新たに受信した付随情報に置き換える(S406)。

【0071】ユーザは再生映像・音声を確認し外部装置の機能を利用するときには、外部装置30の機能の利用要求を付随情報操作手段211からクライアント装置20に入力する(S407)。

【0072】外部装置30の機能の利用要求が入力されると、再生制御手段203は、外部装置30の機能の利用要求が入力された時点の映像・音声の再生位置情報を付随情報制御手段213に渡す(S408, S409)。

【0073】再生位置情報を受け取ると、付随情報制御手段213はサーバ装置10から受信した付随情報を参照し、再生位置情報と照らし合わせることで、外部情報起動条件を決定する(S410)。

【0074】図4に示す付随情報を例にとると、再生開始からの経過時間で映像・音声の各部分を認識する場合、経過時間が $L < t < L1$ とすると、`information[0]401`が有効になる。この時、ユーザが外部装置30としてWWWブラウザを選択していた場合には、WWWブラウザは付随情報の`information[0]401`に書かれている「`Browser[0]=http://www.*****`」のパラメータに従い、`http://www.*****`のURLを開く(S411)。

【0075】外部情報起動条件が決定すると、付随情報制御手段213は外部装置制御手段216に外部情報起動条件を渡す。外部情報起動条件を受け取ると、外部装置制御手段216は、外部情報起動条件に基づいて外部装置30を起動する(S412)。

【0076】ユーザが外部装置30の利用を停止すると、外部装置制御手段216は、外部装置30の終了信号を検出し、外部装置30が終了したことを確認する(S413)。

【0077】以上のように、本実施の形態では、クライアント装置20は、付随情報の変更時に変更された新しい付随情報を受信する。これにより、付随情報に変更が生じた場合に、クライアント装置20は、変更された付随情報をサーバ装置10から獲得し、クライアント装置20における映像・音声の再生と変更された付随情報との同期が可能となる。

【0078】なお、以上の説明において、映像・音声とは、映像または音声の一方だけでも、また両方でもよいことは言うまでもない。また、上記実施の形態の説明では、あらかじめ蓄積された映像・音声情報を配信する例について説明したが、例えば実況中継のような、情報入力から配信までに時間的制約を持つ映像・音声情報の配信の場合にも、同様に本発明を適用することができる。

【0079】

【発明の効果】以上説明したように、本発明を用いることにより、通信ネットワーク上で映像・音声を配信する場合に、映像・音声情報の配信または再生処理から独立して、付随情報の配信処理が可能となる。したがって、映像・音声の再生中に、付随情報の変更が生じた場合でも、付随情報の変更情報をサーバ装置からクライアント装置に対して配信可能となっている。

【図面の簡単な説明】

【図1】サーバ装置の構成例を示す図である。

【図2】クライアント装置の構成例を示す図である。

【図3】第1の実施の形態における処理の流れを説明するための図である。

【図4】付随情報の例を示す図である。

【図5】第2の実施の形態における処理の流れを説明するための図である。

【図6】第3の実施の形態における処理の流れを説明するための図である。

【図7】第4の実施の形態における処理の流れを説明するための図である。

【符号の説明】

10 サーバ装置

101 映像・音声情報蓄積手段

102 映像・音声情報配信制御手段

103 映像・音声情報配信要求受信手段

104 映像・音声情報配信手段

111 付随情報蓄積手段

112 付随情報配信制御手段

113 付随情報配信要求受信手段

114 付随情報配信手段

20 クライアント装置

201 再生映像・音声出力手段

202 映像・音声情報操作手段

203 再生制御手段

204 映像・音声情報配信要求送信手段

205 映像・音声情報受信手段

206 映像・音声再生位置抽出手段

211 付随情報操作手段

212 付随情報表示手段

213 付随情報制御手段

214 付随情報配信要求送信手段

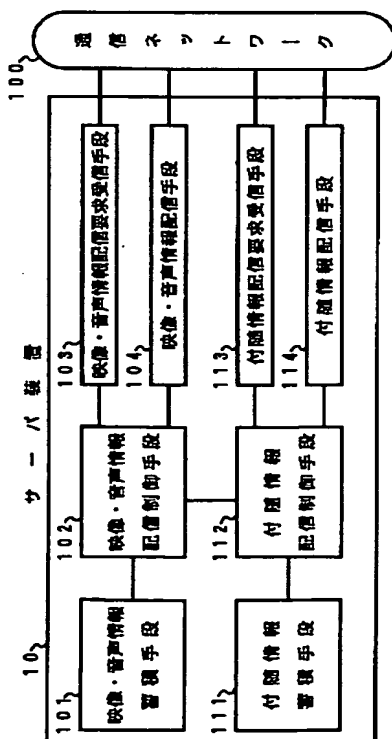
215 付随情報受信手段

216 外部装置制御手段

100 通信ネットワーク

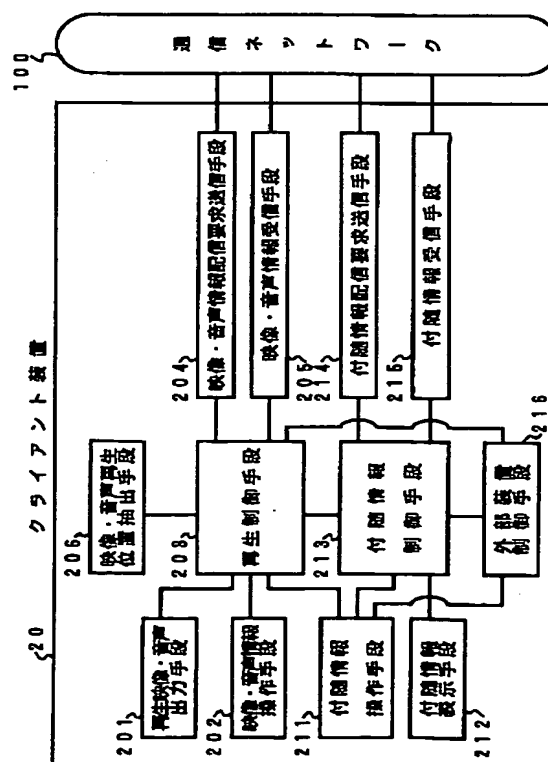
【図1】

サーバ装置の構成例



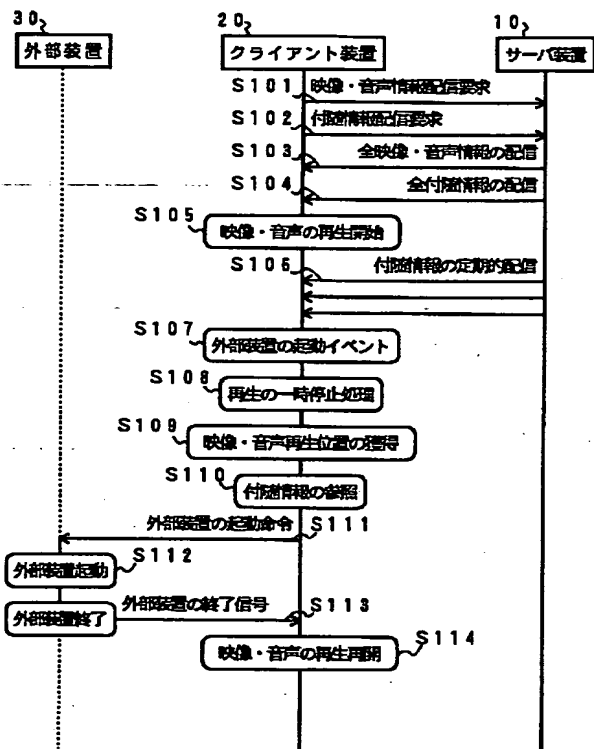
【図2】

クライアント装置の構成例



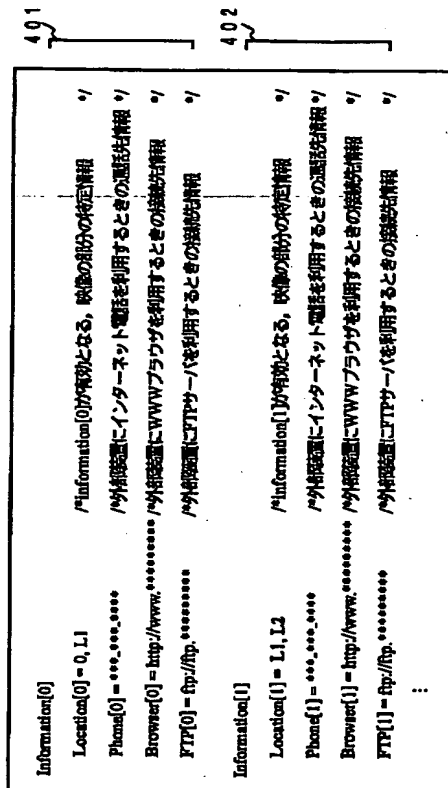
【図3】

第1の実施の形態における処理の流れの例



【図4】

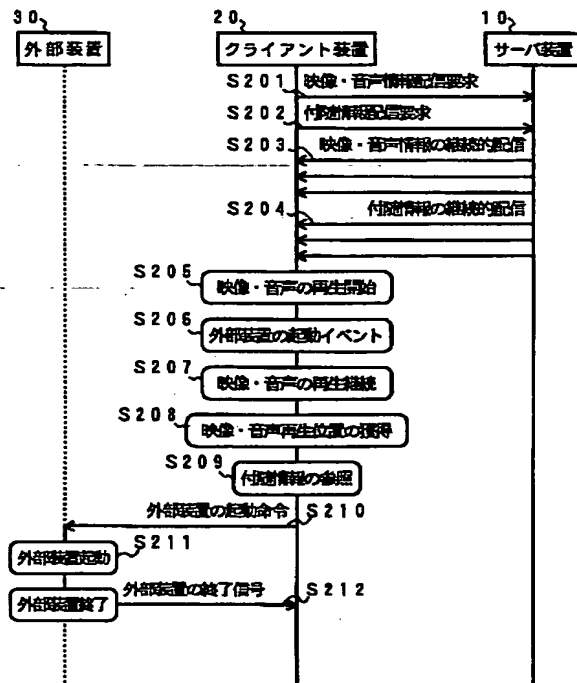
付随情報の例



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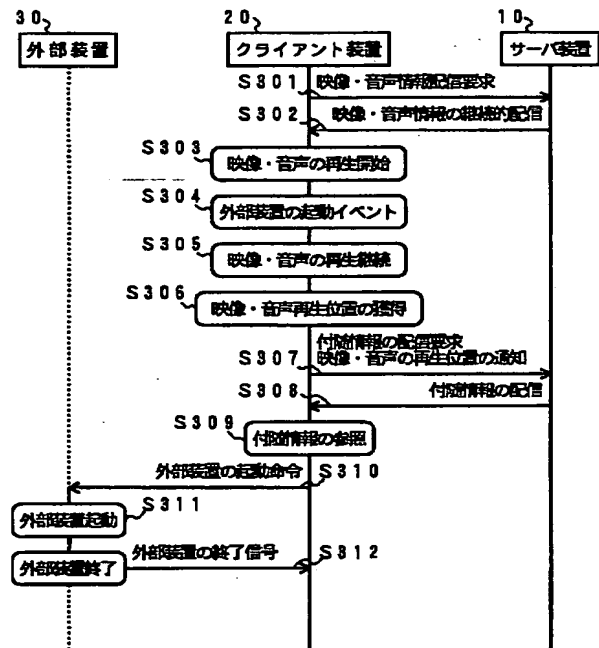
【図5】

第2の実施の形態における処理の流れの例



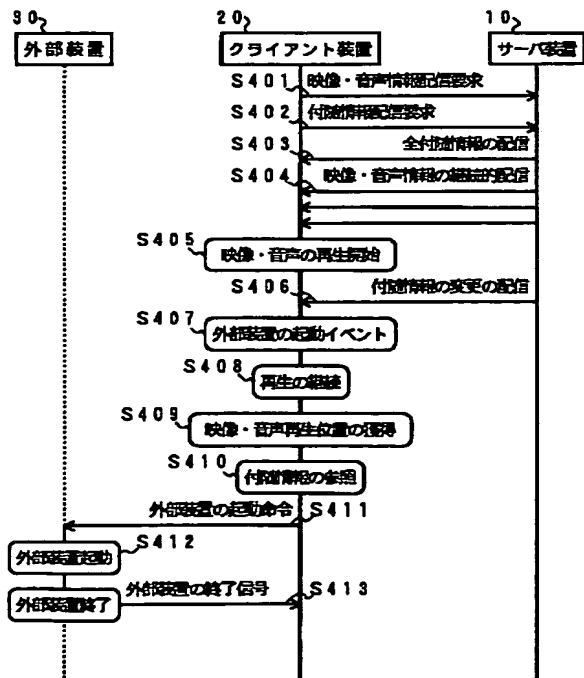
【図6】

第3の実施の形態における処理の流れの例



【図7】

第4の実施の形態における処理の流れの例



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